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Special Libraries, Spring 1987

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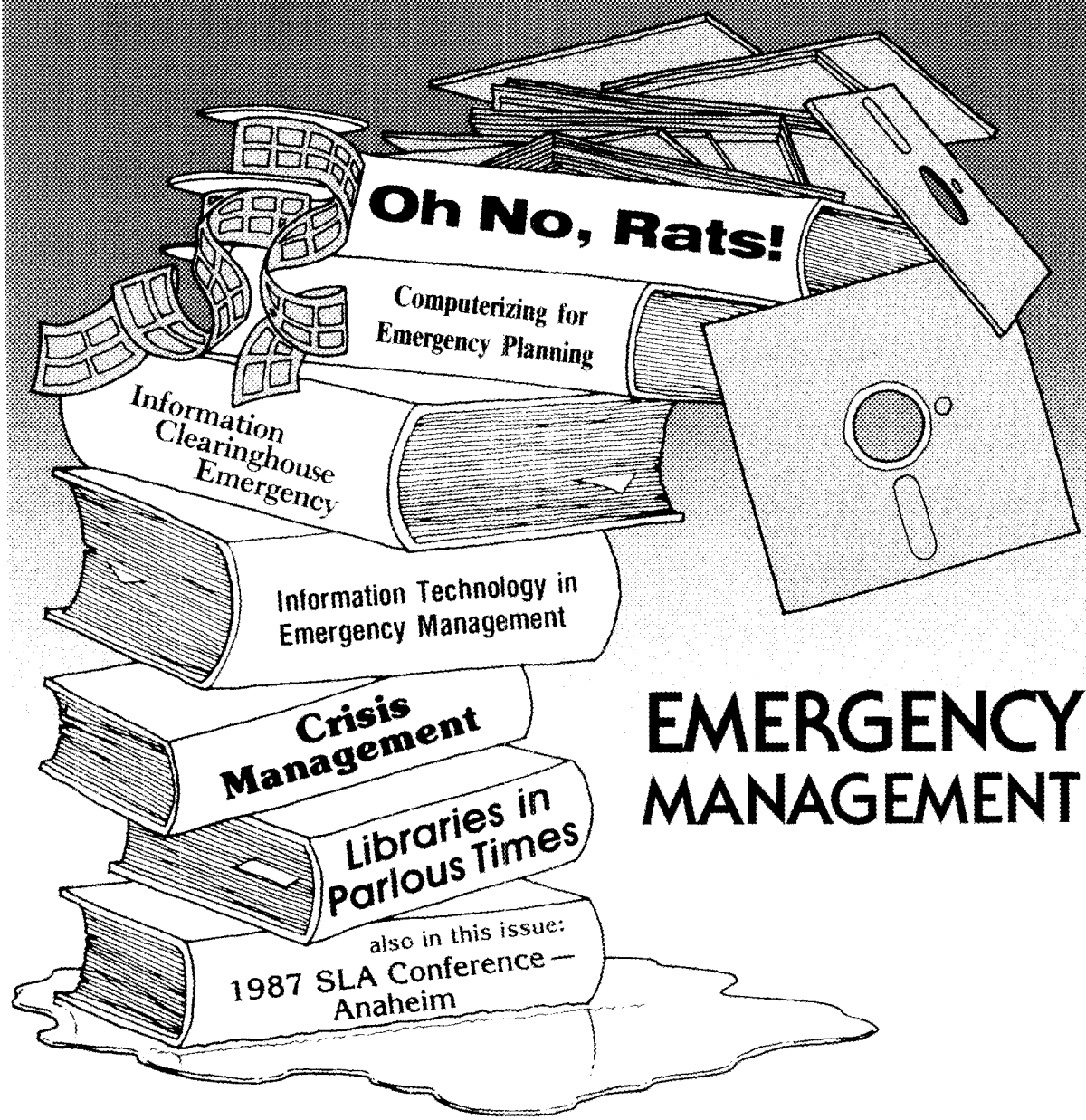
SPECIAL ISSUE



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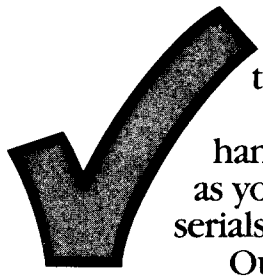

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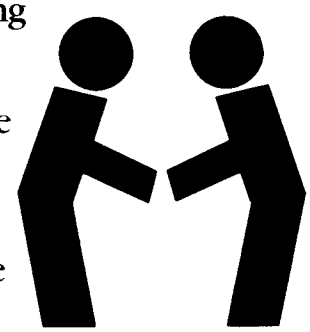

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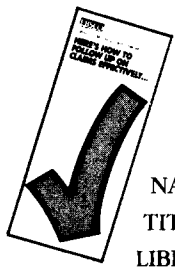

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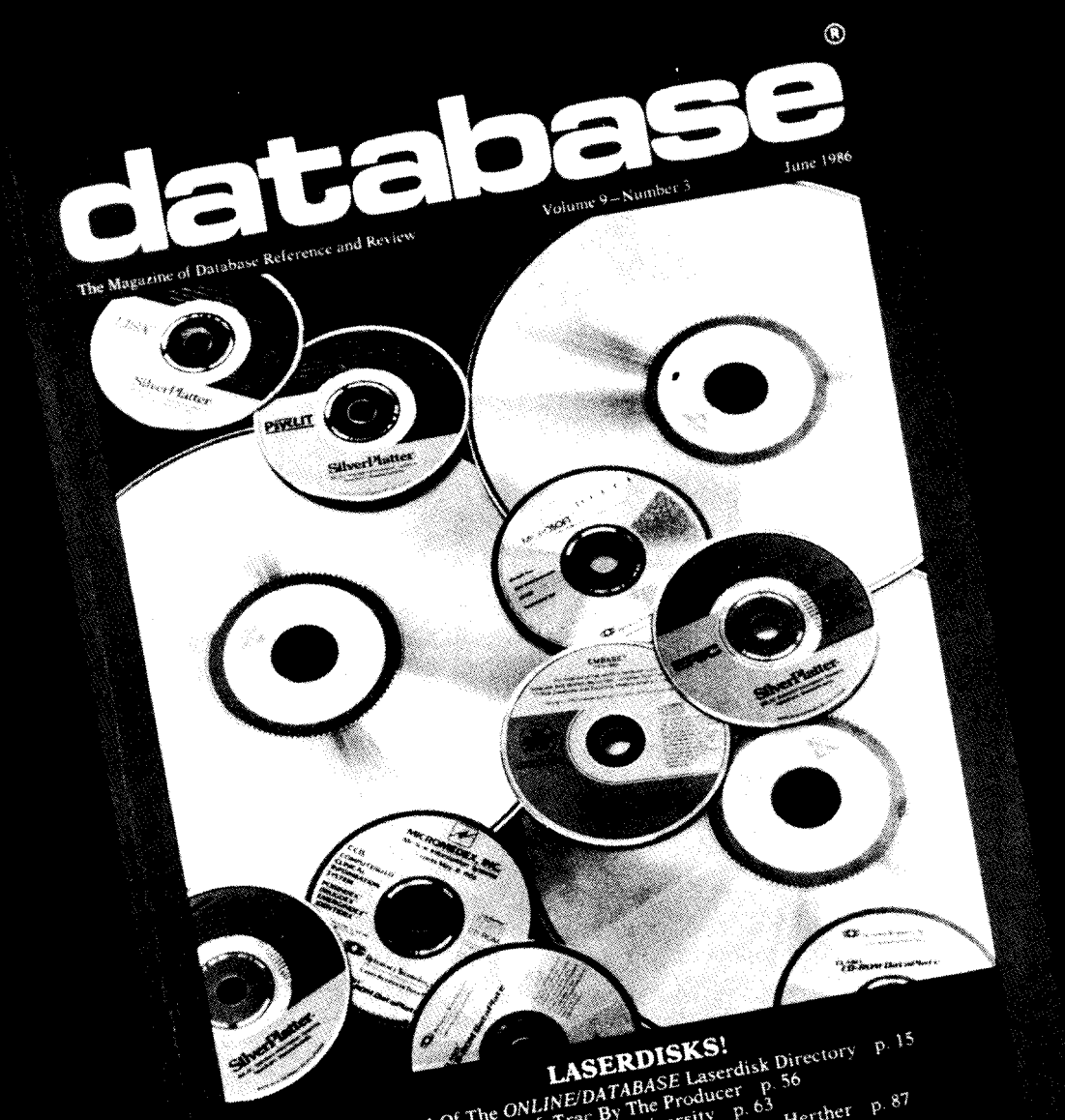

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ABOUT THE GUEST EDITOR

Robert Lee Chartrand is the senior specialist in information policy and technology for the Congressional Research Service of the Library of Congress. For the past 20 years, he has served as an advisor to members and committees of Congress, preparing major studies, conducting special seminars, and holding consultations on the roles and applications of information and its technology within government and society.

Mr. Chartrand's interest in emergency-related matters commenced when he was an active Civilian Defense participant in the great Missouri River flood of 1951. At the request of Rep. Albert Gore, Jr., he was responsible for organizing and coordinating a series of activities focusing on the role of information technology in emergency management situations. Mr. Chartrand continues to carry out selected congressional assignments, including preparation of a regional study of those existing information resources and services that can be brought to bear during various crises.

In addition to writing the major congressional study *Information Technology for Emergency Management,* Mr. Chartrand has prepared special articles on the subject for *The Futurist, Hazard, Natural Hazards Observer,* and *CRS Review.* He is the author or editor of many publications, including *Information Technology Serving Society* and *Systems Technology Applied to Social and Community Problems.* He is a special advisor with the National Commission on Libraries and Information Science, and was appointed by President Carter to the Advisory Committee for the 1979 White House Conference on Library and Information Services.

Mr. Chartrand is an adjunct professor at The American University in Washington, DC, an AAAS Fellow, recipient of the 1985 ASIS Award of Merit, and is listed in *Who's Who in America* and *American Men and Women of Science.*

We would like to thank him for his contributions and assistance in this issue of *Special Libraries.*

"It's a challenge to keep up with our community's growth. Dialog has helped a great deal."

– Homer Fletcher, City Librarian, San Jose Public Library

Homer Fletcher has been a head librarian for 30 years, and over half of those years he has headed up the San Jose Public Library system.

As San Jose has grown, so has its library. From 10 branches in 1970 to 17 today. During that time, Mr. Fletcher and his staff have worked hard to keep pace with their community's growth and needs.

They have taken an approach that is responsive to the diverse nature of their community. As a result, the library hosts a large foreign language collection.

It's hardly surprising that, in 1973, the library was one of the first in the nation to participate in online services through a grant from the National Science Foundation. From that pioneering beginning San Jose Public Library never looked back, continuing to offer its patrons the advantage of online information retrieval.

Today, the library's online department is one of the most progressive in the nation. According to senior librarian Martha Schmidt, "Our department is staffed by seven librarians who now handle nearly 700 requests a month for online searches."

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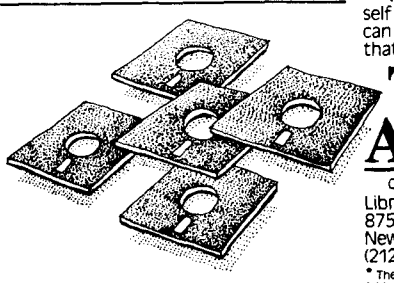

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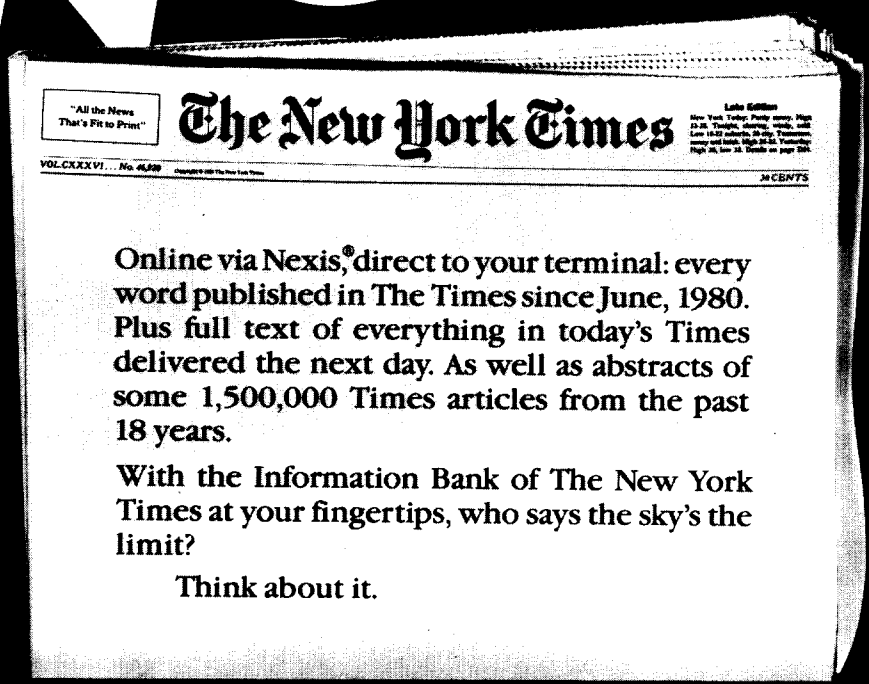

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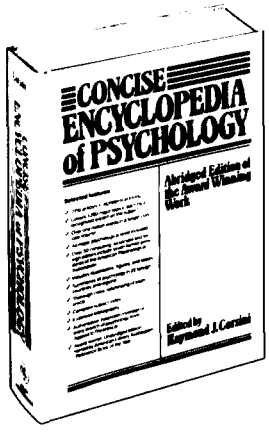

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LS/2000 Report: 1986

The Best Year

The LS/2000 system enjoyed its best year yet in 1986. The steady stream of 30 system acceptances gives testimony to increased stability. Our success is due to the skill and experience of the staff in our Implementation and Support Departments who work together with libraries to deliver a system that meets the needs of both library patrons and library staff.

Our marketing efforts were equally successful as The University of North Carolina selected the LS/2000 system for 12 of its 16 campuses. The other 4 campuses had previously selected systems, including East Carolina University, which had chosen the LS/2000 system in 1984. All 16 campuses will be linked through a telecommunications network known as LINCNET which is operated by the North Carolina Educational Computer System.

LS/2000 Statistics

	In 1986	Total to Date
CPUs Installed	**28**	**68**
Contracts	**30**	**88**
Libraries	**35**	**164**

Number of Initial Terminals Per CPU Installed in 1985

Terminals	CPUs
1–12	**15**
13–24	**7**
25–36	**4**
37+	**2**

Highlights

- Release D of the LS/2000 system was distributed which included the link between LS/2000 and the SC350 serials control system as well as 16 enhancements to the Circulation Subsystem, 6 new capabilities, and 3 issue-related projects.
- The Universidad de Costa Rica purchased the LS/2000 system, the first library automation system in Central America.
- In September, MITRE Corporation became the first nontest site to implement the link between the LS/2000 system and the microcomputer-based SC350 serials control system.
- OCLC Local Systems agreed to acquire from Data Phase the ALIS I and II software and will provide future hardware and software maintenance for libraries using these Data General-based local library systems.

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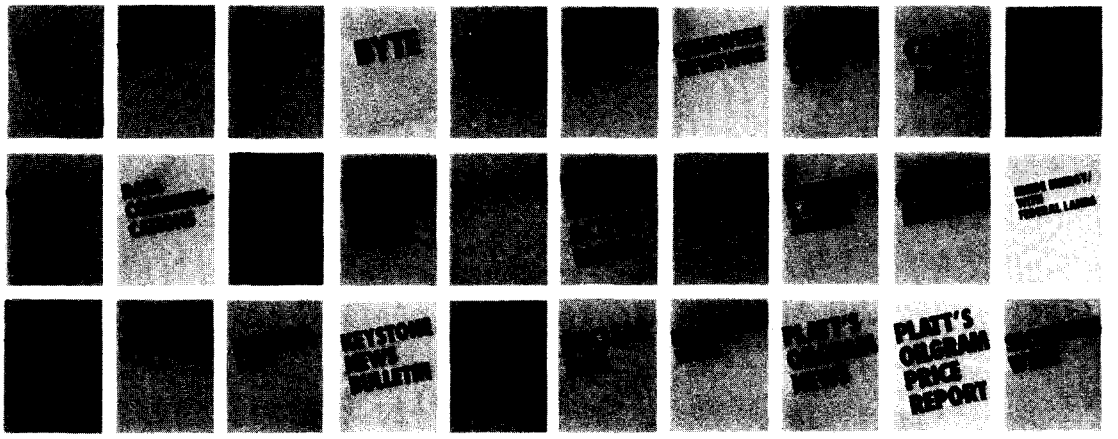

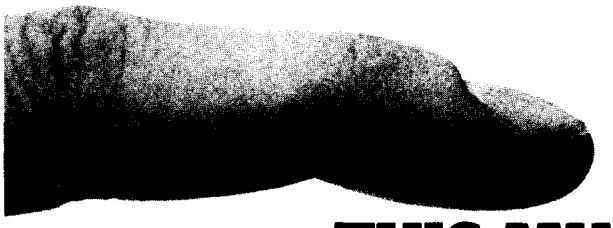

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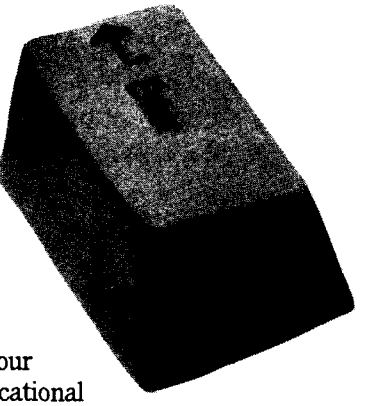

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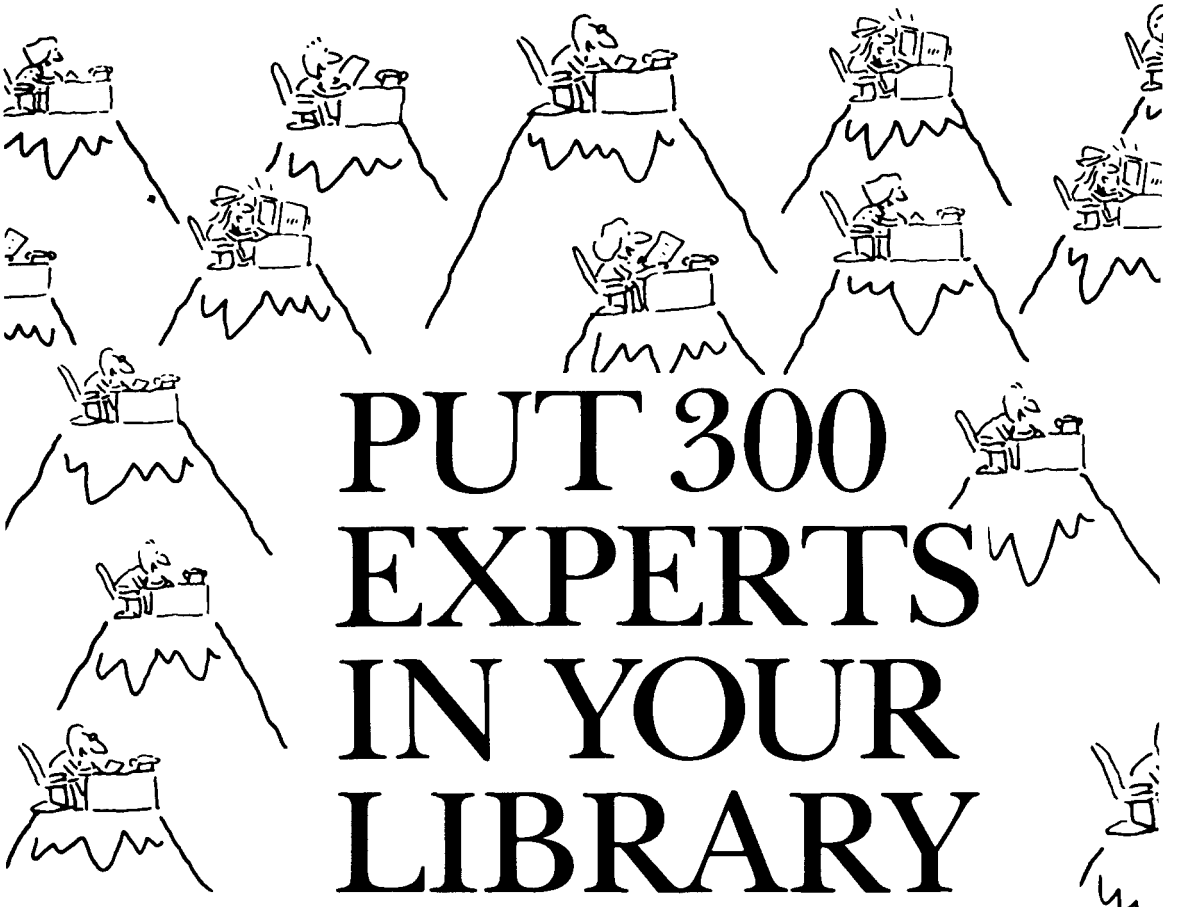

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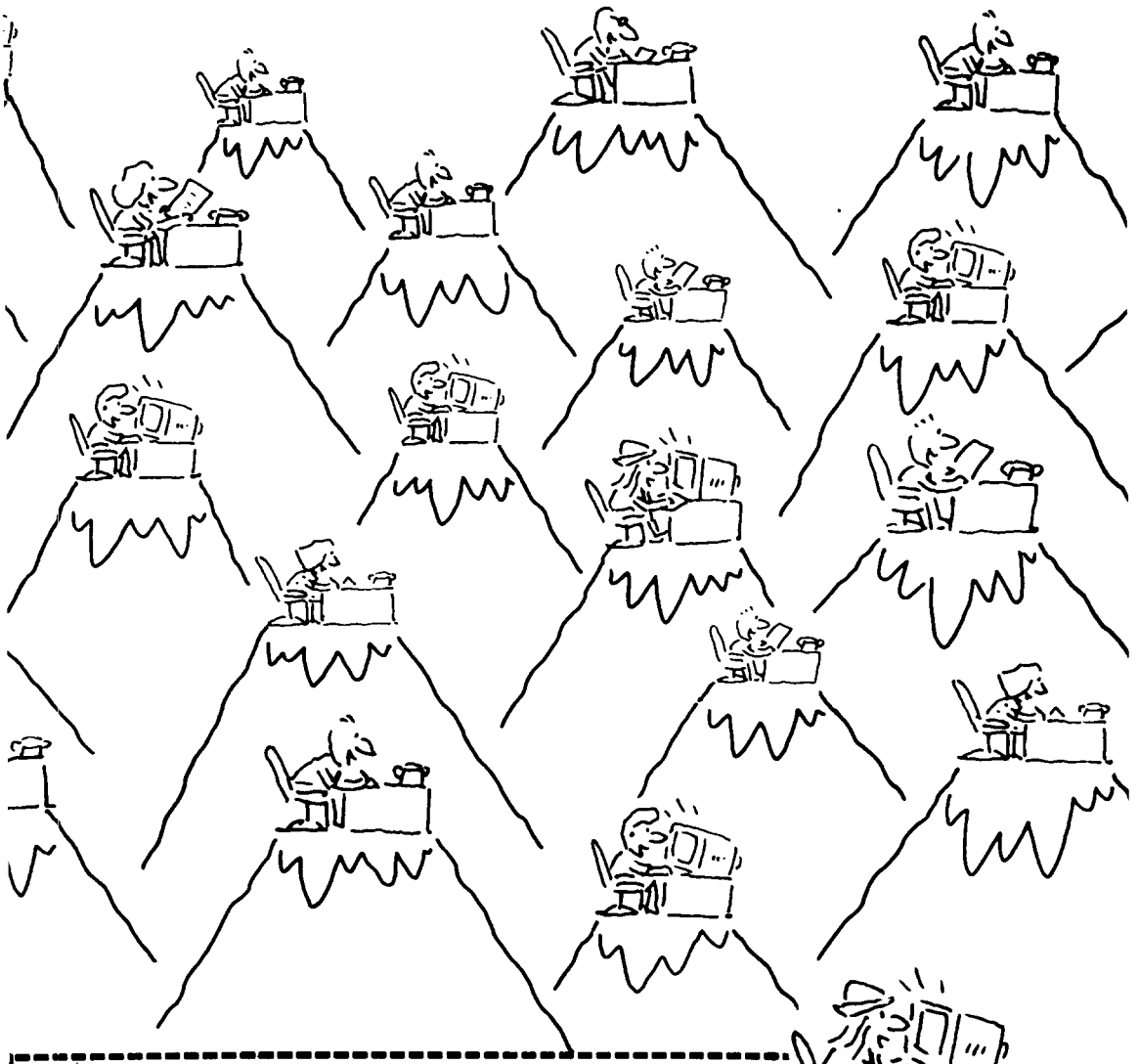

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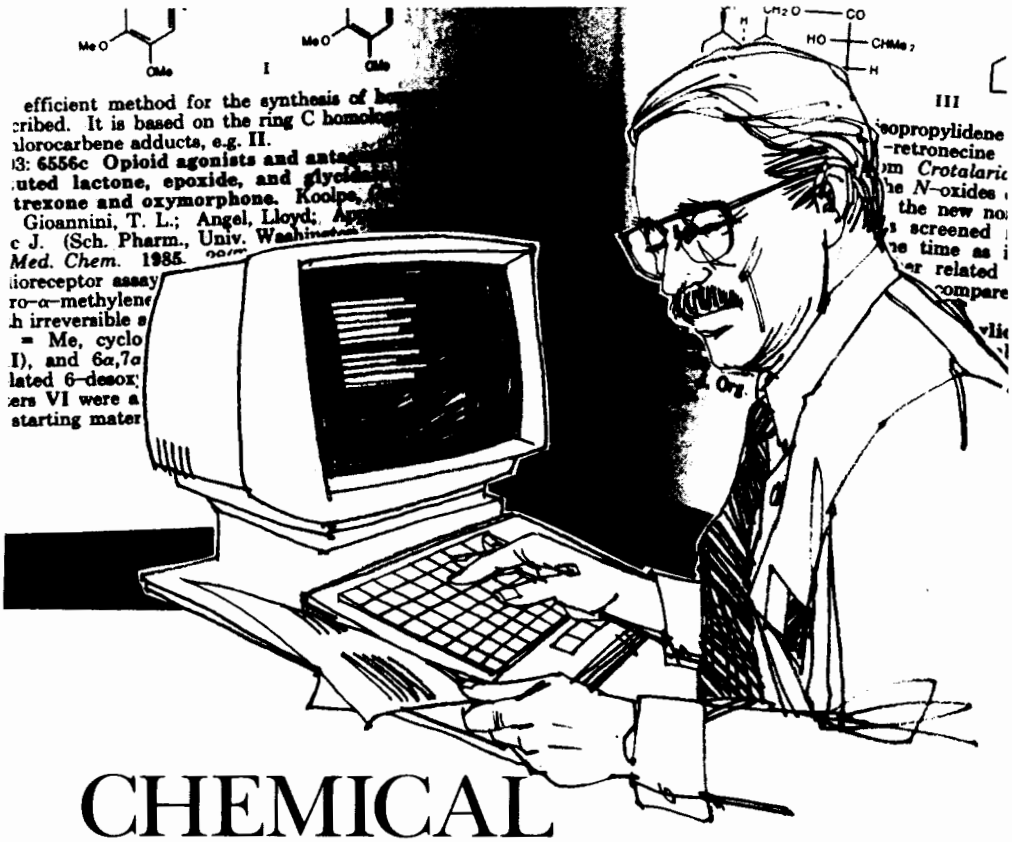

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Libraries in Parlous Times: Responsibilities and Opportunities

An Introduction

Robert Lee Chartrand

■ **The immense potential of libraries, both private and public, as resources that should be available to those who must plan for and deal with emergency situations has not been been generally examined. The importance of developing these existing resources and services, with especial attention to the burgeoning role of supportive technologies—computers, telecommunications, microform systems, audio and video configurations—is recognized in this focal writing. Finally, the comprehension that the decision makers who control corporate, governmental, and academic activities must attain concerning the criticality of such information underpinnings is featured and treated illustratively.**

The contribution that the emergency management community can expect from new information technology will not come from better or faster gadgets, but from greater understanding of the group dynamics of crisis situations, from a greater ability to prepare for such situations through sophisticated simulations and training, and from a finer analysis of their qualitative and quantitative characteristics. (*1*)

THROUGHOUT countless generations, humankind, from its origins in primal forests, atop stilted lake dwellings, or in nomadic travail amid the inhospitable barrenness of desert regions, has coped with crises of its own making or those caused by nature. The often murky chronicles of disparate civilizations tell the stories of such awesome happenings as the Great Inundation, the engulfment of Atlantis and Antilla, the slashing devastation wrought by massive meteors, and the inexorable glacial onslaughts.

In contemporary times, additional threats to tranquility and survival have taken the forms of nuclear-related accidents, toxic releases from chemical plants, ground and air water contamination induced by human thoughtlessness or excesses, and "terrorism" in its random waste of lives and property.

There is a growing sense of urgency within both the public and private sectors reflecting that we as a nation—in the federal domain, as well as in the states and localities—remain inadequately postured to cope with the spate of natural and technological crises of these complex times. Our societal structure and the governmental apparatuses conceived of over the years increasingly are hard-pressed to anticipate, much less respond effectively to, some of the disasters that have begun to impact lives and property. Surely those officials faced with the devastation caused by Mount St. Helens' eruption or, on a lesser scale, the scattershot tornadoes that ravaged the Carolinas early in 1984 would argue that a rethinking of certain priorities and processes should be a paramount consideration.

One critical facet of strengthening the emergency management (EM) capability in the United States—whether the focus is on mitigation, prevention, response, or recovery—is the development of advanced information systems for collecting, storing, processing, retrieving, and sharing essential data and "value-added" information that may be used by emergency managers.

Philosophically, our nation prides itself on systematically analyzing situations and marshalling the requisite responsive resources—human, technological, budgetary—to plan for or cope with perceived or occurring crises. The intrinsic nature of human beings, acknowledged experts in some cases, reflects an awareness of the criticality of "stretching their horizons," which in this modern age may include the use of technology-supported outreach systems. This is indicative of their awareness that change is constant and requires a sustained effort on the part of institutions and individuals to adjust their infrastructures and goals. "Information technology," through its spectrum of sophisticated mechanisms and methodologies, may offer an amplified context for those who must delineate a pragmatic *philosophy* of true emergency management.

Among the institutions possessing great potential for dealing with crisis situations are the libraries. Whether created as a result of Andrew Carnegie's munificence, corporate needs, the focal desires of special interest groups, or as an essential underpinning of academe, these repositories and disseminators of information in myriad forms constitute an indispensable force in crisis control. The thrust of these commentaries represents a very necessary and timely concentration on the thoughts and actions of those at the vortex of both special and public library operations who are responsible for emergency planning and response.

The difficulty of preparing for "disasters" is that they are often beyond the experience of the incumbent staff. Routine emergencies—fire, flooding, infestation, even chemical deterioration—are bad enough and may surpass existing capabilities, but in an electronic age such interruptive forces as power outages, terrorist attacks, or toxic clouds pose horrendous challenges. Dr. Robert Kupperman of the Center for Strategic and International Studies phrased it this way:

> . . . the classic problem in emergency management [as in] intelligence work is how to deal with the fairly low probability incident that has enormous consequences if it happens. (*2*)

Perhaps the other most critical consideration anent the role of librarians and information specialists in their modern setting involves their inseparable ties with adjacent jurisdictions and populations. For public, and some private, libraries this is a long-standing relationship that seems to require no elaboration. However, it is one thing to provide reading material (to cite the simplest example) to the citizenry and quite another matter to be charged with fulfilling a vital role—through the compilation of key documentation and emergency action procedures—essential to the well-being, and even survival, of the community.

Corollary to this redefinition of librarianship is the change which must occur among officialdom and those whom it serves. Reliance on authority or other recognized support groups in a commu-

nity must evolve over time. With the introduction of so many new technologically based systems in people's daily routines, a condition has emerged akin to that perceived by noted observer George Will:

> . . . in the modern age people routinely rely on systems they do not understand . . . [they are] acting on faith, faith in strangers using skills that are as strange to laymen as Lilliput was to Gulliver. (*3*)

Information Support for Decision Making

The importance of having key information for planning in advance of possible disasters, dealing with them as they occur, or bringing to bear adequate resources in the wake of such events is difficult to overemphasize. In most instances, long-established technologies (telephones, radios) have continuing high utility, but there is increasing advantage in the judicious utilization of advanced technologies. The introduction of advanced technology into *any* information-handling environment is fraught with imponderables. The emergency management (EM) and library communities are no exception.

The growing panoply of sensors (aloft and aground), processors, and disseminators—the result of human inventiveness—instigates the rethinking of former, established positions. Included among the organizations in the United States with recognized roles and responsibilities in emergency management who share such concerns are the following: federal agencies, such as FEMA, VA, USGS, NWS, NOAA, DOD, and many more; state and local governments (including task forces); public and special libraries; regional commissions; private sector consultants and information services; information "clearinghouses"; organizational "watch centers"; national coordinating groups; and private sector contractors—corporate, university, and not-for-profit. Today, there is a sizable cadre—more than 12,000 designated "emergency managers"—responsible for anticipating and contending with crises of natural or man-made origins ranging from tornadoes and floods to terrorism and toxic spills. Augmenting these "front line" operatives are phalanxes of librarians and information specialists, situated in communities, corporations, and other institutions across the land, who serve as invaluable providers of requisite information by which crisis conditions are anticipated or met.

It should be noted that the memories and resulting attitudes of those responsible for emergency management often are colored by each individual's own experiences with disasters. Some events have become part of the nation's folklore, like the Johnstown (Pennsylvania) flood of 1889, the San Francisco earthquake and ensuing conflagration in 1906, or the Tropical Storm Agnes in 1972. Observers have chronicled such incidents, and, later, writers often tended to embellish the nature of the cataclysm; indeed, Will Rogers wrote of a storm so bad that it seemed to be a "Chinese typhoon, that had run into Monsoon, that was crossed with just plain Hurricane, and Oklahoma Norther." (*4*)

In *The Andromeda Strain,* there is a carefully drawn explanation concerning the categories within which all decisions involving uncertainty fall—those with contingencies and those without.

> Most decisions, and nearly all human interaction, can be incorporated into a contingencies model. For example, a President may start a war, a man may sell his business, or divorce his wife. Such an action will produce a reaction; the number of reactions is infinite but the number of probable reactions is manageably small. Before making a decision, an individual can predict various reactions, and he can assess his original, or primary-mode, decision more effectively.
>
> But there is also a category which cannot be analyzed by contingencies. This category involves events and situations which are absolutely unpredictable, not merely disasters of all sorts, but those also including rare moments of discovery and insight, such as those which produced the laser, or penicillin. Because these moments

are unpredictable, they cannot be planned for in any logical manner. The mathematics are wholly unsatisfactory. (*5*)

One dilemma yet to be solved fully by the nation's leadership concerning emergency management concerns the existence of separate systems in which civilian and military disaster experts function. The former, no less than their counterparts in the services, need sustained orientation and training, including occasional involvement in EM exercises—such as those featuring the employment of advanced technology support in acquiring, formatting, manipulating, and distributing vital information—some of which should involve multiple jurisdictions. The United States can benefit substantially from the expertise and technologies that have been developed over many years in the national security area, including its "library" resources and wide-ranging information support systems, which may be adaptable to analogous situations in the civil sector.

A Range of Disaster Types

Illustrative of the many types of contemporary disasters that might be better dealt with by the application of such technologies as computers and telecommunications are the following:

- *Floods.* During 1983, according to NOAA, 204 persons died and property losses exceeded $4 billion as a result of floods caused by accumulated snowfall runoff, dam breakage, or intensive rainfall.
- *Hazardous materials spills (in transit).* The National Transportation Safety Board (NTSB) estimates that 250,000 hazardous materials shipments are made daily. Transportation accidents—train, truck, and barge—involving such cargoes have accounted for about 25 deaths per year over the past decade in interstate accidents alone. In 1971, there were 2,225 hazardous releases, but by 1980 the statistic had increased to 16,115.
- *Nuclear powerplant accidents.* Although Three Mile Island is the only "major" accident in the United States in recent years, there were 3,804 LER (Licensee Event Reports) documented instances (in 1980) where performance exceeded technical design paramenters. Filed with the Nuclear Regulatory Commission (NRC), these reports came from 69 commercial nuclear plants: 753 accidents were attributed to human errors and 2,174 to equipment malfunction.
- *Tornadoes.* These destructive weather aberrations account for millions of dollars in damage and numerous deaths each year. The "super outbreak" in a 10-state area in 1974 involved 148 reported tornadoes, which caused 315 deaths and $600 million in property loss. In 1982, FEMA responded to 181 tornado warnings or touchdowns.
- *Boating and aircraft emergencies.* In 1982, several hundred persons died in offshore sinkings; 6,414 fishing vessels required SAR (Search and Rescue) assistance, plus 49,834 such incidents involved recreational boats. In addition, the FAA reported that 3,394 air carrier and general aviation accidents took place. (*6*)

There are, of course, other types of significant emergencies that remain of serious concern to federal, state, and local officials alike, which require that elaborate warning and response systems be maintained. Earthquakes, volcanic eruptions, and hurricanes can be highly destructive and, while less frequent than some other forms of disasters, can cause severe damage. Domestic terrorism, although still modest in the number of incidents, has been accorded an ever higher allocation of resources, including action by corporate entities, in order to prevent or respond to such destructive intrusions.

Alternative Uses of Advanced Information Technology

As traditional technologies—photography, telephone, and radio—are aug-

mented by more sophisticated systems, the ability of the community threatened or already affected by a given disaster to act on its own behalf is enhanced. And while federal or state funding and technical assistance may be solicited, most local communities, by establishing an EM infrastructure and drawing upon other key resources (including libraries and information systems), attempt to achieve a fairly high degree of self-sufficiency for dealing with all but the extraordinary emergency. Illustrative of major advances in using information technology for EM-related functions are the following:

- Eight hundred minicomputer warning systems in use throughout the country;
- A variety of airborne platforms, such as the NASA U-2 and NOAA Flying Laboratories, with their multisensor collection systems capable of providing comparative geographic coverage;
- The large masses of data stored in computerized or microfilm files (e.g., National Hurricane Center);
- The rapid retrieval of key data utilizing online access systems by users located in emergency operations centers (EOC), mobile units, or other remote (local EM) sites; and
- The varied communications conduits—landlines, airwaves, including satellite systems—for transmitting key data. (*7*)

Future chroniclers of our contemporary times doubtless will have much to say about the advent of the many electronic paraphernalia that provide service—and, some critical observers might aver, an occasional disservice—to the world society and its diverse denizens. The early "headliners," such as the Bronze Goddess of World War II fame and the manipulative Hal of *2001 Space Odyssey,* have been replaced many times over by performers in many shapes and sizes. The prismatic offerings on the computer Chautauqua circuit of the '80s often are enough to confound even the most diligent reporter of such goings-on.

Within the past few years, there has been an often startling expansion in the number and types of computer-supported information systems. This plethora of choices is sometimes more frustrating than when there were too few systems on the market. Today, advances in computer technology provide great capacities for the following:

1. Collecting and storing voluminous data;
2. Indexing and abstracting to an extent previously unattained;
3. Integrating multisource data (narrative, statistical, graphic); and
4. Incorporating and utilizing real-time, high-volume data.

What impacts will the new information technologies have on established emergency response institutions? Experience has shown that the replacement of manual systems with those dependent on technology may "come a cropper" when power sources fail or elaborate system structures and procedures break down. The maintenance of back-up systems all too frequently is overlooked or given a low priority to the dismay of managers and those served when a contingency situation develops.

The establishment of emergency operations centers across the nation, whether designed to deal with specific types of crises or as a general type of facility, is an accepted segment of our emergency preparedness structure. Reportedly more than half of the Fortune 500 companies now have formulated "emergency plans" to better posture their facilities, networks, and personnel in case of disastrous happenings. With the blending of advanced equipment configurations and more highly trained human talent, many of these facilities are able to undertake heretofore implausible or unachievable tasks, either in anticipation of, or in response to, certain emergencies. Among these present-day capabilities is the creation of technology-manipulative "models" and often elaborate "scenarios," which allow the EM cadre to study,

in advance, various courses of action for times of contingency.

Typical of the "process," steps which might take place in practicing or refining a scenario at an analyst workstation are the following, described within an imagined setting:

Station alert connoting suspected terrorist incursion—seizure of hostages at political rally to force announcement by major party candidate of support for "independence" of territorial entity. Initial action by Emergency Operations Center (EOC) as follows:

a. Insert "II-1" (Interrogation Routine covering hostage situations); review nature and sequence of questions.
b. Retrieve from Country/Territory File "menu" of major components; then check current information under "Subversive" category, with emphasis on recent reports of "hit team" plans or movements.
c. Insert known parameters of scheduled political rally: when, where, estimated attendance, security precautions (both general and VIP-related, before and after arrangements affecting protection of candidate and other key attendees).
d. Contact Secret Service, local law enforcement authorities, and any other special security forces regarding operational plans to be in effect, as well as table of organization to be activated.
e. Enter "Model File" and retrieve stage one model delineating sequence of precautionary steps to be taken in such a scenario; included will be options governing size and dispositon of security control forces.
f. Determine and insert in model, for further machine manipulation, possible variations in major schedule segments, with probable impact on role and location.

Another kind of scenario which would have high relevance in an age when great numbers of toxic cargoes are in transit around the country and might well be played out in reality in a "special library" environment could include these elements:

Focal occurrence: in transit toxic release (railroad, highway, and barge).
Assumptions: property loss (potentially significant); loss of life (variable); cleanup cost (considerable, to be shared by government or responsible carrier); frequency of occurrence (still rising).
EOC preparatory action:

a. Review of past incidents by type of release, geographical location, damage incurred.
b. Review known, recurring movements by type of substance, route, record of carrier safety.
c. Review roadbed, highway, and waterway condition and maintenance data.
d. Review jurisdictional controls affecting such materials' transfer.
e. Review existing response and evacuation plans (state and local).

The ability to incorporate realistic data into any type of "exercise" in most cases is contingent upon the imaginative exertions of those who plan and execute such training. Admittedly, this is a time-consuming endeavor, but experience, gained from field testing, has indicated that such an expenditure of resources is warranted. Similarly, the development of computer-manipulated "models" was judged useful by a number of participants in the congressionally sponsored technical forum, hearings, and workshop held in the early 1980s.

Recent Initiatives

During the 97th and 98th Congress, the Subcommittee on Investigations and Oversight, under the leadership of Representative (now Senator) Albert Gore, Jr., of the House Committee on Science

and Technology, undertook a multifaceted exploration of the role of information technology in emergency management. Early on, the chairman noted that:

> During these sessions, we shall continue to examine the great potential inherent in the "information technologies" of our time. Developments in computer hardware and software, and corollary progress in the telecommunications field, are often so rapid and diverse that even the experts in those fields are hard-pressed to keep current. The myriad networks and "watch centers" which exist to monitor and respond to a wide range of natural and technological disasters must constantly be reevaluated and upgraded.
>
> Furthermore, the vital role of the human component in all of these sophisticated systems must be reassessed, and the full complement of experience, ingenuity, and intelligence brought to bear on the problems of our times. Here, it becomes imperative that the leadership responsible for emergency management, as well as the people on the firing line, be fully cognizant of these technologies' benefits and limitations. (*8*)

The essence of the thematic goals enunciated and pursued by the Gore Subcommittee throughout its investigation is found in these four areas:

1. A grasp of the full range of natural and technological disasters;
2. What technology can and cannot do;
3. The overt and subtle interaction between human beings and their innovations; and
4. The value of incremental improvements, when sweeping policy and program revamping is not possible. (*9*)

Commentary on some of the vital facets of organizing and using emergency management capabilities, including perceptions about their components and operating characteristics, was made by experts in the field during the course of the congressional examination in the 1981–1983 period. Six areas of paramount, continuing interest elicited these comments. (*10*)

First, an observation regarding the intrinsic role of information technology in the emergency management environment and, even more importantly, the way in which humans must interact with it:

> The essential point that humans provide in an operational center, to paraphrase Tom Belden, is to act as a corporate memory. They have to know who the people are, who knows what, at what point in time . . . no amount of technology can make up for the inadequacies of training, quality, motivation, and energized leadership. (Vincent J. Heyman, Planning Research Corporation, senior associate)

The role of human beings in advanced EM systems drew this comment:

> . . . the human aspects of manning any crisis, whether it be civilian or military, is, in fact, the first order of importance, and that technology can facilitate, in fact it may be critical to, the carrying out of those functions by human beings. But without the human capability in the loop, nothing useful is going to happen. (Dr. Robert E. Kahn, DARPA administrator)

Additional commentary focussed on the roles of such human resources and means of linking these through electronic mechanisms:

> [analysts located in different centers may be able to] . . . work with the same fairly complex models . . . agree or disagree on the list of assumptions that everyone is aware of, build scenarios and models out of a sort of common experience; the computer will make what has been essentially a manual and safe-drawer operation something quite well-timed. (Albert G. Clarkson, consultant)

The creating of "knowledge bases" for the EM decision makers elicited numerous, often incisive statements; the needs of these individuals "under the gun" properly were of central concern:

> In any large-scale civil emergency . . . we do not call it intelligence, but there are vast information requirements. . . . If they need, for example, information on the distribution of population or the availability of

other assets in and near Mount St. Helens, that is intelligence. That includes damage assessment, which is commonly an intelligence responsibility in the military . . . the data base problem may be no worse on the civil side but has been given less focused attention in the past and is less unified in terms of the capacity to communicate among the data bases. (Francis P. Hoeber, consultant)

The nature and reliability of networks, both under normal and contingency conditions, also emerged as matters meriting consideration:

> You should have alternate routes to every path that you are going to take . . . you should have two gateways between every network at alternate sites . . . analysts use the files but they usually have backup methods for getting data, too. . . . As time goes on and they get more experience with the system, they will begin to rely upon it more and more . . . the further you get from the Washington area the more the people rely on the information since it is the only source they have. (George M. Hicken, government system manager)

And finally, the discussants turned their attention to a related key topic: further research and development must be carried out in such areas as data integration, which would maximize the utility of computerized files. This capability would allow greatly expanded usage of these electronic repositories by an array of users:

> [there is a recognized] need for a computerized data base to provide the information needed for legislative and organizational actions which must be taken during the next 5 to 10 years. This information would encompass everything from the results of vulnerability studies . . . to resources inventories. (Robert D. Vessey, Red Cross administrator)

A few important studies and related documentation have been produced in the past few years which represent a first look at this complex topic:

1979–1980 A series of papers on a proposed Crisis and Emergency Management Information System (CEMIS), prepared by The MITRE Corporation. (*11*)

1982 *The Role of Science and Technology in Emergency Management,* a project report by the National Research Council. (*12*)

1982 *FEMA Database Requirements Assessment and Resource Directory Model,* a project report by the Information Retrieval Research Laboratory. (*13*)

1983 *Computer Simulation in Emergency Planning,* conference proceedings. (*14*)

1984 *Remote Sensing and the Private Sector,* a technical memorandum prepared by the Office of Technology Assessment. (*15*)

1984 *Information Technology for Emergency Management,* a committee print prepared by the Congressional Research Service at the request of the House Committee on Science and Technology. (*16*)

Other means exist, in literature and the media, for broadening both professional and public understanding of disasters and existing or projected coping mechanisms. Veteran observers still recall, perhaps with bemusement, the reaction to Orson Welles' martian invasion broadcast or the delight registered by those reading James Thurber's "The Day the Dam Broke." (*17*) Recent media offerings attracting widespread attention and comment have included such "docudramas" as "The Day After" (ABC, November 20, 1983), "The Crisis Game" (ABC, November 22–25, 1983), "Special Bulletin" (NBC, March 20, 1963), and "If I Were President" (ABC, August 6, 1980).

Existing Between Our Imagination and Reality

At this juncture in our civilization, with a great spate of emergencies caused

by the intricacies of our inventiveness, to say nothing of the yet uncontrolled population expansion and the countless problems resulting from unanticipated technological impacts on people and their institutions, there may well be a real need to rediscover in very pragmatic terms what is meant by "emergency management." It might seem to those of certain perceptions that all is under control, which may be the case in a few areas. But for the most part, our nation appears—in the words of one erudite commentator—to be "streaking into the future with its wonderful capacity for controlled negligence." (*18*)

What is known definitely about our overall emergency management capability, particularly where the utilization of advanced information technologies is concerned? Through the recent strenuous efforts of the Federal Emergency Management Agency (FEMA) and a growing number of responsible state and local governmental and information sector components, a far greater understanding of the benefits *and* limitations of using computers and telecommunications (and related systems) has occurred. This enhanced awareness reflects their roles in all four phases of emergency management: mitigation, prevention, response, and recovery. So rapidly is the inventory of information technologies expanding, however, that it has become increasingly difficult to stay abreast of even the most basic major improvements in these technologies, much less their EM applications. Already, not only the prognosticators, but the program planners, information scientists, and systems designers for tomorrow, are commencing to look at such developments as the following:

- Employment of advanced videotex systems, with their virtuosity in presenting both textual and graphic material;
- Console capacities within a complex of online equipment configured to optimize remote resources, as well as facilitate two-way "dialogue";
- Sophisticated, technology simulation systems inherently capable of expediting and integrating the design and scenario machinations of an interdisciplinary project team;
- The immense storage capacities of optical disk systems;
- Numerous ways in which a manned orbiting laboratory can monitor weather and geological patterns and occurrences;
- The performance of multipurpose vehicles with communications and data processing capabilities sufficient to function in normal or *in extremis* circumstances and ensure responsive EM action; and
- Comprehensive satellite-supported networks that link far-flung communities or service elements, even in times of severe disruption.

The *durability* and *flexibility* of emergency management systems are critical parameters for functional effectiveness. There is an upswing in simulations and actual exercising of certain crisis handling systems to test their execution of vital operations under stress. This constitutes one facet of "quality control," which can be a crucial underpinning for any such system. To many, if not most, with emergency management support responsibilities, the criterion is *the delivery of needed information* that is accurate, timely, comprehensive (where possible), and relevant to the challenge at hand. The "system" or "tool" may be incidental, and if its performance is unreliable—whether in terms of linking networks or simply retrieving a piece of key data—then the responsible office may opt to return to a simpler, more trustworthy, capability. In many quarters, library systems have come to realize that they face precisely the same challenges and options for action.

While the presence or absence of a computer in an EOC or a networking arrangement with some external resource may affect, to a degree, the effectiveness of such a facility, it is generally agreed that the key ingredient is *the human being.* It is this component, usually represented

by a team of persons who have trained together, that must cope with the situation at hand. And all too often, when crises arise unexpectedly, the decision process is much like that characterized by William Allen White as: "that indefinite, shifting, intangible series of hunches, guesses and hypothetical phantasms." (*19*) In emergencies involving natural forces (e.g., tornadoes, floods) or accidental actions, such as toxic spills, the responses required are often akin to those demanded in political imbroglios. Diverse and conflicting human impressions that comprise the data that must be acted upon, sometimes along with at least tangentially useful background information, may be all that exist for the emergency manager besieged by intense advocates of opposing claims and decisions. Thus, the forward-looking library official, governmental manager, or private sector EM action person tries to anticipate whenever possible what might happen in that locale, which information could be collected for utilization later, and how the inventory of equipment on hand can best be employed.

The acquisition, verification, and transmittal of information has always been critical in meeting a variety of crises ranging from small-scale localized disasters to larger emergency situations affecting a wide geographic area. Information technology, as never before, has come to offer a wide range of potentials for enhancing the effectiveness of crisis organizations—both governmental institutions and designated authorities within the private domain—as they fulfill their responsibilities of providing for emergency warning and notification, situation assessment, decision making during crises, and dissemination of essential information for responsive action.

Illumination through Professional Perceptions

The varied perspectives featured in this theme issue offer an invaluable and candid illumination of disaster-type dilemmas faced by librarians and their "information specialist" colleagues as they attempt to plan for and react to the emergencies of—and sometimes beyond—their working milieu.

A careful scrutiny of the emergency management profession and the inculcation of requisite knowledge and skills through the curricula of the National Emergency Training Center's Learning Resource Center are the foci of Adele Chiesa's incisive piece. The outreach of this Federal Emergency Management Agency unit to attendees from across the country and the necessity of maintaining contact—in a variety of forms—with off-campus professionals have resulted in the creation of a "national library" for the EM community. Included are library and information services that embody both traditional and innovative procedures, products, and information transfer systems.

Noting correctly that the utilization of "fictional accounts often present commonly held ideas about life's problems" with a telling trenchancy, Ted Sheldon and Gordon Hendrickson—drawing upon their respective roles as director of libraries for UMKC and associate director for the Western Historical Manuscript Collection (Kansas City)—reflect upon emergency situations presented on television (e.g., *Testament*) and in novels (e.g., *Alas, Babylon*). Transitioning to a discussion of academic libraries in emergency situations, the authors focus on a pair of concepts, the "limited vision concept" and the more expansive "maximum opportunity concept." Linkages with other libraries through consortia, allowing fulfillment of a vital response role during crises, are emphasized.

From the vantage point of a leader in the world of emergency managment, who has developed a widely used, online "Emergency Information System," Jim Morentz chooses to focus on the failure of many libraries to recognize the risks which exist and the opportunities available to minimize them by using existing emergency management computer software to improve preparedness and responsiveness. Also, the versatility of such

computerized support systems allows their utilization in designing renovations, considering storage options, and preparing special displays and exhibits. Standardization and interchangeability of emergency plans among libraries and other mission-related information centers form a final focus of this thought-provoking commentary.

State Librarian of California Gary Strong brings forth in penetrating fashion a problem of undeniable pragmatism involving rodent incursion, and, from this springboard, goes on to highlight admirably the "incredible resources" that must be managed within the California community if future generations are to be served. His discussion of special preservation endeavors, such as the "Red Tag Rescue" Project, facilities reclamation, and demands on staff, will strike familiar chords for those plagued with like problems.

Members of Congress rely on timely and factual information in order to make sound decisions. In "Notes from a Congressional Informer," Lynne McCay, the senior team leader of Congressional Reader Services for the Congressional Research Service of the Library of Congress, discusses the role of information in emergency management, the importance of the informed legislator, and the responsibilities of the individuals who provide the information.

The importance of carefully delineated emergency planning within a corporation such as EXXON can hardly be gainsaid, and in the article by the quintet of corporate authors led by Beth Soled there is a useful exposition of those procedures and processes developed "to meet governmental regulations and to safeguard its own investments." In addition, the paper describes in useful, illustrative fashion the information technologies employed in handling both internally generated and published information, as well as how such information is used to prevent or respond to emergencies.

County librarianship has its own array of challenges, as noted by Agnes Griffen, who strives to shape the density of a hyperactive system within a large metropolitan area. Employing the simulative moniker for this jurisdiction of "Druid County," the author proceeds to develop an "Emergency Management Planning and Disaster Preparedness Program." By using formal recommendations, interactive memoranda, and other typical bureaucratic devices, the evolution of this EM support capability is presented with effect.

The unique nature of the Pikes Peak Library District's multifaceted capabilities is related with clarity and insight by Lynn Magrath and Ken Dowlin, who serve as its deputy director and director, respectively. In working with a series of key agencies and organizations (e.g., the U.S. Air Force Academy, The Urban League), the library has effectively created a "network of community information." Online service to the community resource files was instituted in 1978—the first library in the country to achieve this level of support. Finally, the authors postulate the creation of a "Clearinghouse for Emergency Information," which would enhance emergency preparedness and complement existing EM resources serving the region.

Thus, the peruser of these often interlocking commentaries is treated not only to factual descriptions of how librarians across the spectrum are actually designing and implementing responsive emergency management services and systems, but additionally is being proffered a somewhat kaleidoscopic view of the philosophical landscape in which these mechanisms are generated and operated. Even a cursory reading of these imaginative and often quite personal expositions raises certain questions that *must* be faced and answers hopefully devised:

- Have priorities been determined for the creation, maintenance, and use of those essential information files and related library services which should be available to key decision makers before, during, or in the aftermaths of emergencies?
- Will reliable, and if required, "se-

cure" communications be available for transmission of vital information between corporate or community elements (such as libraries or medical units)?

- Is there a current, valid, long-range plan addressing extant EM concepts and plans as they relate to the scope and nature of "watch centers," networks, libraries—including viable linkages among them—and their most complete use by responsible personnel?
- Has the optimum use of paper or computer-supported simulations, along with the actual exercising of personnel, equipment, and information support systems, been studied and plans for their operational utilization developed?
- Have orientation and concomitant training courses, especially at the state and local level, been established on a continuing basis so that librarians and allied information specialists can really conceive of their emergency roles?

The essence of these questions as regards systematic preparedness for the unknown or, at best, inadequately known disasters that may beset us is an age-old concern. Twenty-five years ago the use of the so-called "systems approach" was in great vogue. Lessons *were* learned through its use in the aerospace, military, and intelligence establishments, and, in some instances, this "wisdom" was transferred to the civil sector for further benefit. The underlying importance of this strategem was considered by the National Commission on Technology, Automation, and Economic Progress in its 1966 report:

> In short, what a systems approach implies is comprehensive planning so that we can trace out the effects, progressive and regressive, of any set of choices and decisions upon all other relevant decisions. (*20*)

In an age fraught wth uncertainty and turmoil, those professionals charged with ensuring stability and an extension of our civilization complete with its knowledge into an indefinite future must utilize our precious information and human resources. They must find, in such parlous times, that "balance of life" about which James Michener wrote in his epic *Space,* wherein that consists of

> . . . handling in real time those problems which cannot be delayed, then recalling more significant data during periods of reflection, when long-term decisions can be developed. (*21*)

Implicit in this opportunity and excruciating challenge is an opportunity for the display of humankind's ingenuity and industry and a masterful melding of that human reasoning and innovative technology which will ensure our survival and well-being.

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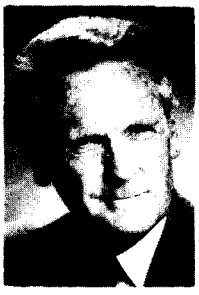
The views expressed in this article are solely those of the author and do not necessarily reflect those of the Congressional Research Service or the Library of Congress.



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Glossary of Selected Terms of Key Information Technologies

Prepared by *Robert Lee Chartrand*

Information and its associated technologies can play a vital role in assisting managers to respond rapidly and effectively to natural and man-made emergencies. In recent years, decision makers have become ever dependent on information technology in handling diverse crises, such as nuclear accidents, oil spills, and hazardous waste disposal. As computer and communications technologies advance and costs decrease, their uses in emergency management are likely to expand. The following selective list of definitions includes examples of information technology that currently may be used by various libraries in emergency management situations.

Computer—An electronic machine capable of processing numbers and letters of the alphabet for many different purposes.

Computer graphics—Digital creation of information displays.

Computer network—The use of a network to link computers together so that they can share a workload or allow users connected via terminals to a particular computer to have access to facilities and services provided by other computers in the network.

Computer-output microfilm (COM)—The transfer of information from a computer to microfilm through an intermediate photographic advice.

Data banks—Large accumulated files of information in machine-readable form for subsequent access by users via a computer.

Electronic message system (EMS)—Sometimes called electronic message services. A generic term used to describe computer-based message systems, such as electronic mail, for example.

Electronic printing—The coupling of information stored on a magnetic tape with high-speed photocomposition machines that automatically set type for printing.

Facsimile—The optical scanning of a page of printed or graphic information, its transmission over communication lines, and its faithful reproduction at a distant receiving location.

Hardware—A term used to define the physical components of a computer, as contrasted with software, that defines logical functions implemented as coding in a program.

Information networks—The interconnection of a geographically dispersed

group of libraries and information centers through telecommunications, for the purpose of sharing their total information resources among more people.

Microcomputer—The term "microcomputer," which was first used to denote a subclass of minicomputers dedicated to single tasks and seldom if ever reprogrammed, has become a distinct category. Microcomputers are sometimes called "single chip LSI processors," "component processors," or "stand alone" systems to provide added capabilities to standard computing installations and to enhance logical functions for noncomputer products, e.g., specialized television display, including videodisc.

Picture phone—A new device that permits you to see the person you are calling when making a telephone call.

Software—The collection of man-written solutions and specific instructions needed to solve problems with a computer. All documents needed to guide the operation of a computer, e.g., manuals, programs, flowcharts, etc.

Telecommunications—A term pertaining to the communication by electric or electronic means and/or the transmission of signals over long distances, such as by telegraph, radio, or television. Telecommunications in a broader sense includes not only the technical aspects of transmission, but also such aspects as the development of messages and programs and studies of audiences.

Identifying the Emergency Management Profession

Adele M. Chiesa

■ **In building an emergency management library collection, providing technical data on all natural and technological hazards becomes secondary, within a training institution, to identifying common interests, methods, and systems found at the federal, state, and local level when responding to and planning for disasters and crises. These mutual goals, problems, and processes unify emergency management as a profession and help identify the skills public officials must possess in order to protect their citizens and maintain a safe environment.**

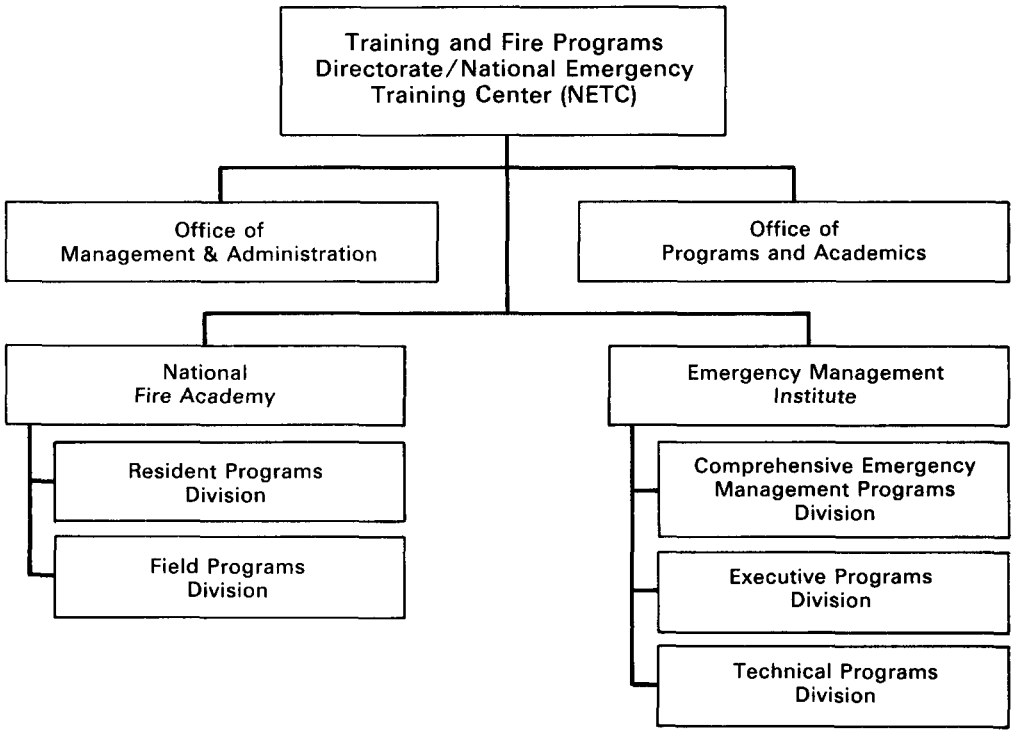
THE National Emergency Training Center (NETC), located in Emmitsburg, Maryland, is the training directorate of the Federal Emergency Management Agency (FEMA). It provides emergency management training and education programs for federal, state, and local personnel. These programs are delivered on site at NETC and also through a field system at the state and local level throughout the country.

There is an emphasis on "professionalization" in the two schools at NETC—the National Fire Academy (NFA) and the Emergency Management Institute (EMI) (see figure 1). Both NFA and EMI include "executive development" courses in their curriculum. What is emergency management? Who is the emergency management professional? What skills do these professionals need in order to be effective? How do they become and remain leaders in their fire departments, police departments, city councils, and other governmental organizations?

I did not intend to be deliberately philosophical when I asked myself these questions several years ago. What I thought was going to be the beginning of a wonderful, uncomplicated relationship with a library for a narrow and easily identifiable field turned into a challenge not only to support with information an emerging profession but also to distill those common interests that unify an overwhelmingly diverse occupation.

As its name indicates, the NETC Learning Resource Center (LRC) upholds its mission to support curricula. Students are our primary patrons. I rely on our instructors and course developers for information on new courses, revised instructional methods, a change in class assignments, and a myriad of other educational plans, programs, and objectives. This exchange of information is constant and is both formal and informal. It also involves more than just a list of course titles. But for the moment let us oversimplify and base all collection de-

Figure 1. Training and Fire Programs Directorate/ National Emergency Training Center (NETC)



velopment activities in specific subject areas on the following NETC course menu:

Emergency Management Institute

Microcomputer Application in Emergency Management
Nuclear Weapons Accident Workshop
Formulating Public Policy in Emergency Management
Radiological Emergency Preparedness
Developing Volunteer Resources
Fundamentals of Natural Hazards Management
Hazardous Materials Contingency Planning
Fallout Shelter Analysis
Natural Hazard Mitigation (Inland)
Non-Structural Earthquake Hazard Mitigation for Hospitals & Other Health Care Facilities
Executive Development for Emergency Program Managers
Hydrologic & Hydraulic Concepts of Flood Insurance Studies
Methods and Techniques of Adult Learning
Temporary Housing Program Workshop
Evacuation Planning and Response

National Fire Academy

Fire/Arson Investigation
Strategic Analysis of Fire Department Operations
Interpersonal Dynamics in Fire Service Organizations
Fire Service Leadership Communications
Management of Emergency Medical Services
Management of Fire Prevention Programs
Fire Prevention Specialist I
Plans Review for Inspectors

Fire Executive Development III
Fire Service Financial Management
Fire Service Information Management
Fire Service Instructional Methodology
Hazardous Materials Tactical Considerations
Chemistry of Hazardous Materials

This is not a complete list of NETC courses. The titles themselves indicate the main subject content of the classes. But a course, for example, like the Fire Executive Development III (NFA) also covers equal employment opportunity issues, group process, organizational development and effectiveness, and data collection and use. In all this, there is a body of knowledge that forms the foundation of a profession.

The LRC opened in January 1980. Since then, it has gradually acquired a role as a "national library" on emergency management. Information requests (see figure 2) are accepted via a toll-free number (1-800-638-1821), and two special collections—the Emergency Management Information Center (EMIC) and the Arson Resource Center (ARC)—have been established to specifically serve "off-campus" users. The standard fare of interlibrary-loan, ready-reference, and referrals are complemented with limited bibliographic support and document delivery. At least a corner of emergency management's "universe of knowledge" can be provided just for the asking. Like the NETC curriculum, information requests from the public cover a range of subject matter, and, like NETC students, off-campus patrons are also diverse—city managers, mayors, fire chiefs, police chiefs, trainers, lawyers, doctors, educators, and students. The general public throws us the added complication of age. A second grader calls and wants to write an essay on home fire drills. Does the LRC have any information on residential fire safety?

At first, I thought that the best way to build a library collection and design information services was to simply identify all the hazards that FEMA could respond to and that NETC might base a curriculum on presently and in the future. Technologically, humankind has demonstrated that there is no end to our disaster-creating abilities. The evidence of this is found in places like Bhopal, Love Canal, Three Mile Island, Chernobyl, and many others. Natural disasters, while for the most part are "identified," challenge us with their intensity, probability, and area of impact. There appears to be no limit on the variety of events that can cause a local, state, or federal government to mobilize its resources to protect its citizens. But while the disasters and the people responding to those disasters are heterogeneous, the processes involved in emergency management have many homogeneous elements and are inherently proactive and not reactive. Providing information on the generic process of emergency management is the only reasonable method for handling the full spectrum of knowledge on natural and technological hazards.

Briefly examining some specific hazards can illustrate this point further. The LRC's catalog has plenty of entries on earthquake preparedness and fewer on seismology; plenty on fire department management and fewer on combustion science and toxicology; plenty on hazardous materials transportation and fewer on organic chemistry. There are also emergency management key words that cross all hazards and assist in identifying the appropriate information to include in the LRC collection: public education, prevention, risk analysis, planning, preparedness, relocation, mobilization, mass casualty, triage, probability, public information, emergency operations center, exercises and drills, continuity of government, evacuation, public awareness, etc.

Reference service demands on the LRC reflect the distinction between the highly technical information on emergencies and hazards and the more practical information needed, such as the following:

- How can a fire department form a hazardous materials response team?
- What safety and protection meth-

Figure 2. Information Request Form

National Emergency Training Center
Learning Resource Center
Emmitsburg, Maryland 21727

Information Request

REQUESTOR: _____

DATE: _____

Send to (if different):

_____

_____

_____

_____

_____

_____

_____

PHONE: _____

REQUEST TAKEN BY: _____

TELEPHONE # USED TO CALL US: _____

AFFILIATION:

__ USFA __ OP&A __ NFA __ M&A __ EMI __ CONTRACTOR __ FEMA

__ FEDERAL GOVERNMENT
__ STATE GOVERNMENT
__ LOCAL GOVERNMENT
__ FORMER STUDENT
__ EDUCATIONAL ORGANIZATION
__ NONPROFIT ORGANIZATION
__ COMMERCIAL ORGANIZATION
__ CURRENT STUDENT
__ FIRE DEPARTMENT
__ NONAFFILIATED
__ FOREIGN
__ OTHER (specify)

REQUEST FOR SERVICES:

1. Information required (topics)

2. Completion date: _____ Completed by: _____ Hours taken: _____

Record information sources sent on back of this sheet or attach to letter request.

ods, policies, and procedures exist for first responders?

- What are the code requirements and standards for mobile home and trailer parks?
- What is an arson task force?
- Are sample evacuation plans available, and how does one go about establishing a plan for a community?
- Are any sample job descriptions for a civil defense/emergency program manager available?
- What kind of special care do the elderly require after a disaster?
- How many firefighters died in the line of duty in 1984?

The emergency management professional that the NETC LRC comes in contact with everyday is a person who must prepare for the worst, must inform the public on how likely it is that the worst will happen, and must effectively administer and manage all the resources that must mobilize when the worst does

occur. In the age of shrinking revenues, the last requires innovation and creativity. These professionals are just as interested in fine tuning their management skills as they are in learning about the latest improvements in severe weather prediction.

For the LRC, necessity has created a thesaurus (see figure 3), extensive vertical files, and an NETC periodical index. These internal resources, combined with commercially available bibliographic and cataloging datebases, have taken some of the pain out of accessing emergency management information. There will always be, as with any "special" library, the need for persistently discovering and creating new ways to systematically acquire and identify publications in the relevant subject areas. My persistence has admittedly waned steadily in this area. Some of the best emergency management audiovisuals and publications are locally produced, are not accessed by any standard bibliographic sources, and are produced in limited quantitites. They are captured for the LRC usually through NETC students and other personal contacts and networks with emergency management personnel. More importantly, how many of these items are missed and never shared?

Curriculum plans, student demands, and inquiries from the general public provide the linkage that brings the diversity together and, paradoxically, makes the variety almost commonplace. Emergency management and, in its own way, I hope, the NETC LRC builds bridges between the seismologists and the disaster plan writers; between the chemical engineers and the hazardous materials transportation industry; between the architects and the fire inspectors. The second grader who wants information on home fire drills and the police chief who needs a model plan for an emergency operations center are in the final analysis looking for the same thing—information on how to keep their own part of the environment safe. This common goal identifies emergency managers as a group and further establishes the body of professional literature affiliated with them and their critical responsibilities.

Figure 3. Thesaurus (Sample Page)

labeling
BT: hazards identification
RT: placarding

labor and laboring classes
RT: manpower

labor contracts
UF: collective labor agreements
BT: contracts

labor law and legislation
UF: right-to-work legislation

labor management negotiations
USE: collective bargaining

labor management relations
RT: collective bargaining
labor unions
strikes

labor unions
RT: collective bargaining
labor management relations

laboratories
UF: research laboratories
testing laboratories
RT: research

ladders
NT: aerial ladders
BT: escape means
firefighting equipment

SYMBOLS

BT = broader terms
NT = narrower terms
RT = related terms
UF = use for ("use for" term indicated)
USE = use ("use" term indicated)

Adele M. Chiesa is the chief of the Learning Resource Center at the National Emergency Training Center (NETC) and has been with the Federal Emergency Management Agency since the agency was established in 1979. Chiesa has established libraries for NETC, as well as for the National Fire Academy (NFA), where she was previously employed.

Emergency Management and Academic Library Resources

Ted P. Sheldon
Gordon O. Hendrickson

■ **In the face of emergencies, breadth of vision tends to contract, narrowing the range of responses. As emergency managers ask "where can information be located as quickly as possible, and how can it be brought to bear on the problem at hand?," they should turn to academic libraries to expand horizons, widen the vision of the possible, and thereby increase their understanding and knowledge. In this context, academic libraries serve as gateways through which information from their collections, the faculty of their institutions, and ultimately the whole of the academic community may be tapped to manage emergencies successfully.**

FICTIONAL accounts often present commonly held ideas about life's problems in language and through plots which most Americans understand and appreciate. Emergencies and emergency management (*1*) are no exception. Fictional treatments of emergency management raise questions about the limitations of the human intellect, the nature of information resources, and the employment of those resources. The real-life response to emergency situations all too often follows the patterns depicted in *Testament, The Day After,* and *Galapagos.*

In the recent, popular movie *Testament,* (*2*) a moderate-sized community in northern California confronts nuclear war and its consequences. Minimal efforts have been made to mitigate the impact. In horror, the residents of the town come to realize what has happened to them and to the rest of the world. Gradually, they become aware of the magnitude of their own emergency. Using an elderly hobbyist's short-wave transceiver, they make contact with a few others in a world fragmented into isolated inhabited enclaves. The psychological pressures mount as the effects of radiation poisoning relentlessly kill the people of the town. Soon static is the only response to calls on the short-wave set.

As the crisis deepens, and the search for methods to manage the situation proceeds, no one makes an effort to expand his knowledge or to consult library resources. Other than the Bible, no one consults books or information sources of

any kind. The citizens of the town bury their dead, draw closer together, and help each other. Their information base is limited to what they can remember, or what one of the town doctors can recall about radiation poisoning. Even their efforts to contact the outside world are only directed toward learning if anyone else is alive.

A recent, though not so well received, television drama, *The Day After,* (*3*) presents another nuclear "emergency," this time an attack on Kansas City, Missouri, and Lawrence, Kansas, 50 miles to the west. In the period before the attack, information, by inference, is used only to create the nuclear attack itself. Mitigation efforts accomplish little more than the identification of shelters from which people emerge to confront Armageddon. Again, the perspective of survivors only narrows as grief, suffering, and ever-present death blunt and destroy any reasoned search for data upon which a response may be based and a recovery process begun. No one, not even those in the health center one block away, makes an effort to get to the vast resources of the University of Kansas' libraries, located in Lawrence.

Kurt Vonnegut, whose view of humankind's intellect has never been flattering, describes the beginning of World War III in *Galapagos.* (*4*) Speaking from one million years in the future, the narrator scorns human abilities by calling humans "the big brains," so conceited about their mental capacities, so sure of themselves. Information, a component of technology, is pictured as a neutral force, neither inherently good nor bad. "The big brains" think they control it with their intellect, but World War III begins despite their self-assured belief that they control their destiny. Information in the hands of "the big brains" results in the creation of sophisticated weapons which have objectified warfare. And yet the use of these weapons appeals only to the unacknowledged animal instincts still a part of human nature. "The big brains" succumb to these instincts and come within a hair of destroying all humankind. *The misuse of information has caused the "emergency," not mitigated against it.*

In the aftermath of World War III, eight young native girls from the heart of the Amazon jungle, who have never before had contact with "the big brains," save humankind from extinction. Their reproductive abilities save the race—information plays no role in this severely constricted response and recovery effort.

These three commentaries present commonly perceived misconceptions about the nature of mankind and information, and suggest the need to examine the value and uses of information and libraries in emergency situations.

Libraries, particularly academic libraries, and the information resources they offer generally are not consulted in emergency situations, probably because they are perceived as serving only the faculty and students of their parent institutions. Thus, academic libraries occupy a position apart from the mainstream. Ironically, they often are perceived to be strangely distant and oddly unknown even among the very faculty and students they are chartered to serve. In the context of emergency management, then, what is an academic library and what is its role?

Two concepts appear to dominate thought about the nature of academic libraries. The first, which may be called the "limited vision concept," strongly emphasizes preserving the past, with an emphasis on books, periodicals, and, to a lesser extent, other printed matter. Included are works of the very recent past which have a recreational function, or which are used in making business and other decisions. The fundamental question for emergency managers operating within this concept is as follows: "What does this particular library have within its walls?" The horizon of possibilities is circumscribed, and the range of information which users *think* is available remains equally circumscribed. Librarians have, of course, made sure that the best collections, the best indexes, the best circulation policies, and the fastest acquisitions and cataloging procedures make

such a library as current and informative as possible. But the concept itself limits the horizons of both library and information users and librarians. No matter how efficient and effective a library may be, the users and the librarians look only to the library's own internal information resources. In emergency situations, the limited horizons implicit in this concept converge with the natural tendency to narrow the search for effective responses.

A wider concept of what academic libraries do, and what they can be, is required if academic libraries are to fulfill their possible roles in emergency management situations. The "maximum opportunity concept," though far from new, provides expanded opportunities to meet emergency situations successfully. At its heart, this concept first asks, "Where can information be located as quickly as possible, and how can it be brought to bear on the problem at hand?" Here the role of the academic library focuses on the questions of access to information and the expanded use of professional staff to locate and deliver needed information. What the individual library holds in its collections remains of great importance. Naturally, reference specialists will utilize their in-house resources to aid in emergency containment situations prior to availing themselves of other resources in their institution or their community. After those resoures have been consulted, the academic library staff members use available communications systems and technologies to locate other materials and information sources.

By utilizing this concept, the academic library's role in emergency management changes. It becomes a gateway through which all the resources of its parent institution and other academic institutions, as well as its own informational resources, now flow. Now the library becomes a factor which widens vision, perspective, and opportunity in the face of emergency situations. It serves to counteract the inherent narrowing and limiting tendencies which such situations generate.

The academic library's rightful role is to expand horizons, widen the vision of the possible, and thereby increase understanding and knowledge. An academic library's responsibility is not limited simply to its first level of users, the faculty and staff of its parent institution; it has the opportunity, indeed the obligation, to contribute to the successful management of emergency situations.

Within the context of this "maximum opportunity concept," and the gateway role which the academic library should assume, what can academic libraries provide to assist in managing emergency situations? It becomes a multifaceted organization drawing on its own resources, its extended information network, and the faculty of its parent institution.

Within its holdings, a variety of information sources exist. A partial listing of information types that an academic library can provide would include, but is not limited to, the following items.

Maps. Most academic libraries either own or have knowledge of a wide variety of maps showing a multitude of relationships and placements. Especially common are road atlases, including early editions showing roads now superseded. Less common, but not less valuable in some types of emergencies, are topographic, soil, and related maps showing the physical geography of an area, the lay of the land, watercourses, rock formations, soil type, and related information which help determine where pollutants will flow, how porous the soil is, and what its absorptive capacity is. Specialized types of maps will show such information as the location of sewers, underground and above ground communications and telephone networks, electrical systems and grids, computer networking systems, tunnels used for a variety of purposes, flood patterns and intensities, water mains and systems, sanitary disposal systems, weather patterns and intensities, pipelines and gas transmission lines, highway load limits, mass transit systems, water depth, breakwater, and levee placement and size.

Historical maps have particular im-

portance because they will show what is no longer visible. Early maps, which lumbering and mining companies drew, may identify logging or other infrequently used or even forgotten roads. Railroad company records may include maps of abandoned rights-of-way, and topographical maps may indicate the routes of abandoned irrigation canals, diverted streams, and proposed, but unused, dam sites. For example, the Sanborn Fire Insurance maps show, among other things, the locations of buildings, railroad trackage, and street patterns in the late 19th and early 20th centuries. In contrast, satellite-based remote sensing projects, such as EROS and Landsat, continue to produce specialized maps showing in detail weather patterns, temperatures, and other data, often over a significant period of time.

Architectural drawings. The archive and manuscript collections housed with academic libraries often contain architects' drawings originally used to plan and construct buildings. Access to these design documents for specific buildings provides information on the structural support of the building, the specifications mandated and used during construction, the locations of electrical power conduits, water and sanitation pipes, floor loading factors, and other information essential to handling a variety of emergency situations. When a major museum suffered a flooded basement, architectural drawings and maps of the city's water system aided in locating a major shut-off valve to stop the flow of water and to minimize the damage during a local emergency.

Architectural plans frequently yield information useful to emergency managers. Foundation plans for buildings may include information about the subsoil and the bedrock of an area that engineers obtained from core samples taken during the building's planning phase.

Local government documents. Noncurrent documents produced by local governments often find a home in the government documents departments of academic libraries. As a part of the planning and delivery of services to citizens, local governmental bodies often produce detailed reports and plans which analyze options and make recommendations that are carried out with local funding. These documents, and the appendixes accompanying them, often provide data regarding fire protection facilities, water system capacities, problems encountered in providing a wide range of social services, and numerous other subjects. Frequently they contain studies performed by private and public organizations involved in the awarding of contracts. They also relate the reasoning used to reach conclusions, and that reasoning may well be as important in the mitigation process of emergency management as any other information gathered.

State and federal government documents. State and federal dollars have been used to fund a multitude of studies ranging from the psychology of deprivation to uses of lasers. The academic library is often the repository for those documents. In addition, the academic library most likely will have the indexing systems and expertise needed to find needed information quickly. Owing to the limited bibliographic control available for state documents, the academic library often offers invaluable experience needed to find relevant material.

Archival and manuscript sources. Research institutions often preserve local and institutional documents of considerable value in emergency situations. Faculty research files preserved in an institution's archive may contain considerable information that was gathered but never published. For example, a geologist's study of underground storage facilities in a given area may have summary results in published form, but research files will include additional data on location of underground facilities, characteristics of the space, and the physical and geographic relationships of the various underground facilities. Likewise, the academic library's local history manuscript collection may have acquired the local spelunker society's records. These files may include data on area caves, their nature, location, and relationship to one another, as well

as information on their geology not available from any other source.

Reference sources. The ability to access information quickly becomes a more vital function of academic libraries with every passing day. As a consequence, they have expanded the number of indexes, abstracting services, bibliographies, handbooks, and other types of reference sources. Following the gateway concept, reference services concentrate on learning what exists and where in the world it is located, as well as providing service directly from owned collections. Depending on the research and instructional programs they support, academic reference services will include the use of thousands of computer databases producing citations for information held in numerous countries, which is quickly available through telefacsimile transmission.

The corpus of published research in nearly all subjects may be had through academic reference research staff. Reference to the in-house collections and information resources of the academic library does not exhaust its ability to respond in emergency situations. Because they play central roles in the institutions they serve, academic librarians are familiar with the subject interests and research strengths of the faculty and staff. This knowledge allows them to link stated information needs arising from all phases of emergency management with faculty and staff expertise in appropriate areas. In numerous situations, librarians have linked teaching and research faculty with emergency planners and managers, such as in the following cases:

1. A major spill of PCBs within a building leads to a call for information and assistance to a nearby academic library. The librarian connects the emergency manager with a faculty member whose research field is the control and cleanup of PCB contaminants.
2. The spread of rabies among populations of bats threatens other animals and ultimately humans. Few in the community are aware that a biologist on the local university faculty has done extensive research on bats. Fortunately, the science specialist at the institution's library is aware of this fact, and connects concerned local officials with this valuable information source. As a result, a serious medical emergency is handled knowledgeably, and an ongoing relationship between biology department faculty and public health officials is established.
3. When faced with a possible inflow of airborne pollutants that could adversely affect the health of area citizens, the local emergency manager contacts the university library, whose archivist locates a research report containing vital information on prevailing wind conditions.

In these examples, the academic library utilizes campus resources to avert or respond to emergencies. In most cases, the knowledge of campus resources for possible application in emergency situations remains a tertiary function for librarians. However, one academic library has sought to create a database of faculty and staff expertise. Arranged according to primary and secondary subject interests, the database quickly provides the names of individuals in the academic community who have special skills and knowledge helpful in planning for emergencies, as well as in responding to them.

Beyond the local campus, the academic library has access to the nation's entire academic community. Use of subject-accessing systems, especially card-based and online catalogs and bibliographic utilities present in all academic libraries, helps identify important research publications on a given topic, as well as the academic affiliations of authors. Discussions with these authors will confirm the availability of assistance or lead to valuable referrals. Another avenue directs the academic librarian to local faculty members, who are able to refer requests for assistance to colleagues in other institutions. Employment of formal and informal information networks that link

academic researchers can bring needed expertise to bear on specific emergencies in a timely manner.

Linkages with others types of libraries round out the network relationships of academic libraries. Multitype library consortia now constitute the rule rather than the exception in many parts of the country. They coordinate the provision of information services within a geographic area, and provide a ready-made referral and cooperative handling system to help meet emergencies. Academic libraries can and do supplement the collections and services of public, special, and school libraries, permitting an integrated response to emergencies. Among the services offered by such consortia are computer-based communications systems, coordinated collection development programs, interlibrary loaning and borrowing, reference referrals, and an administrative infrastructure providing easy communication among libraries and librarians.

The benefits to be derived from utilizing academic library resources to manage emergencies are great. That little attention has been directed toward realizing these benefits reflects the generally narrow and unimaginative view of the role played by academic libraries, and all libraries for that matter, in contemporary society. While *Testament* and *The Day After* in many ways reflect that view, perhaps Pat Frank, author of the widely read novel *Alas, Babylon* (*5*) pointed the way for emergency planning and management. Fort Repose, a town consisting of some 1,500 citizens living off the beaten track in central Florida, is the scene from which the nuclear holocaust and its consequences are viewed. In a story similar to *Testament,* the Bragg family and their neighbors struggle to survive after nuclear war has destroyed their world's social, economic, and political fabric.

But Frank's approach to information and its use is different. The town librarian, Alice Cooksey, is a principal character in his novel. She bicycles to work each day to handle the growing demand for library services. In a world without electricity, cut off from information formerly provided from the "outside," and faced with crises associated with survival, information obtained from the library plays a significant role as Fort Repose copes with its emergencies. The town's doctor, searching for a way to alleviate pain and to perform surgery without drugs, learns hypnosis from books Cooksey provides. As the lack of salt threatens the health of survivors, a century-old diary identifies once abandoned but not invaluable salt licks.

Since they realize the benefits of applying relevant information to emergencies, Randy Bragg, his family, and friends cope relatively well with crises and increase their chances of survival. This same principle applies to management at all stages of all emergencies.

Along with other types of libraries, those serving academic institutions properly serve as gateways through which information from their collections, the faculty of their institutions, and, ultimately, the whole of the academic community may be tapped to manage emergencies successfully. Failure to accept an expanded vision of academic library resources might well have disastrous consequences.

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Computerizing Libraries for Emergency Planning

James W. Morentz, Ph.D.

Emergency management professionals are all too familiar with the losses suffered by organizations, such as libraries, that ignore the likelihood of disaster. Yet, emergency planning for libraries is a naturally low priority—even though risk is considerable and losses can be devastating. Help is available in the form of sophisticated, but inexpensive, computer programs that can be specifically designed to provide guidelines on emergency planning for library personnel. Thus, the computer can maximize emergency planning, while minimizing the burden of planning on library staff. In addition, the non-emergency use of the computer system can include library planning and even reader services. The bottom line, however, is that emergency preparedness for libraries is a valued library asset that is achievable.

QUESTIONS like "Where can we get another 6,500 plastic book storage bags?" arise during the spring floods in the Midwest and the hurricanes of the Gulf Coast. "Who has freeze drying equipment?" can be asked following a building cave-in or an earthquake where a fire breaks out and water damage occurs. "How do we evacuate this library?" is asked by library officials in the minutes after a truck overturns and toxic chemicals start leaking, or when a terrorist seizes hostages.

Clearly, these are not everyday questions for the special library staff. However, they are questions that need to be answered immediately when they are asked. This article is directed to all those libraries that are not prepared to answer such questions.

As an emergency management professional, I am all too familiar with the losses suffered by organizations, such as libraries, that ignore the likelihood of disaster. This article offers some suggestions on using existing emergency management computer software to improve emergency preparedness for libraries, and contains a challenge to the library community to look at risks from internal and external hazards as an important priority.

Beyond basic fire prevention activities, few libraries have given much consideration to preparing for emergencies. A flood with a probability of occurring only once every 100 years is hardly a priority

issue for a board of directors. A hazardous materials spill—from a truck making deliveries, from an underground gas line, or from the lawn service pesticide storage tanks—presents a potential jeopardy to the library facility, its holdings, and its staff and patrons. Yet, focusing attention on such potential disasters is frequently seen as a luxury among library officials with small staffs, low budgets, and high demands. Why? The answer lies in the failure of libraries—and countless other institutions in our society—to recognize risks that exist and to understand the ease with which significant contributions toward improved emergency preparedness can be made.

Risks to Libraries

Traditional approaches to risk management have generally been directed by insurance. Every library has had occasion to examine its risks when engaged in the insurance underwriting process. Either in-house, governmental, or insurance risk managers assess the risk inherent in library operations, and their loss potential, in order to ascertain costs of insurance (or possible loss, if self-insured).

However, the insurance-based assessment of risk is quite narrow. A few risk managers are beginning to understand the broader implications of emergency preparedness. Those individuals employed in libraries who wish to expand their thinking on hazard management can consider, instead of merely fire and theft, the likelihood of the impact on libraries of the following example hazardous situations:

- Earthquake and subsequent gas leaks, explosions, water main leaks, and flooding can directly affect libraries. More than two-thirds of the states in the United States have some risk of earthquake.
- Tornadoes, severe thunderstorms, and blizzards cause direct damage to structures and loss of collections, as well as the indirect effects of power outages. Requirements for sheltering patrons during storms need to be considered.
- Hostage-taking and other acts of terrorism occur for a variety of reasons, none of which excludes a library as a site. Coordination between library personnel and law enforcement forces is essential in such events.
- Toxic materials outside the library (being transported through the streets or stored nearby), as well as inside the library (for example, chemicals used in conservation), are hazards that would require prompt evacuation of the library.

Even these brief examples suggest far more comprehensive emergency preparedness responsibilities than most libraries now accept. As a public facility, libraries need to be connected to a weather warning system to provide information to users about immanently dangerous weather conditions. Libraries in earthquake zones must secure shelves and books so that shaking does not result in injuries from flying and falling objects. Libraries need proven and tested evacuation plans to assure that patrons can be effectively guided out of the facility. Moreover, in a major emergency the library will be called upon to organize its users and staff as part of an organized, large-scale evacuation to a sheltering area. In such an event, the library may be called upon to become a staging area for busses. Or, perhaps, the library may be one of the few remaining buildings after a disaster, and must become a resource for fresh water and a distribution point for food and clothing.

Again, these are not everyday occurrences. As a result, libraries legitimately can deny the priority of emergency planning—until the day of disaster. Then, the preservation of the library facility, its collections, and the lives of its staff and readers becomes the highest priority imaginable.

The Problem and Opportunity

Emergency planning for libraries is often considered a low priority due to a

misconception of low disaster probability and high costs of disaster preparedness.

The answer lies in improving disaster preparedness for libraries. This means assessing a library's risks from all forms of natural and technological hazards. It means developing an emergency plan for the library that creates internal emergency management skills and resources, while drawing upon outside (usually governmental) resources to the maximum. And it means examining all the potential impacts of a library emergency on the surrounding community and the effects of a community-wide disaster on the library.

The opportunity to do this has recently become available: Computer technology and emergency management application software now exists that is particularly valuable for library emergency planning. Libraries can engage in a guided and relatively inexpensive effort to improve emergency preparedness.

One particular software package called the Emergency Information System® (EIS) can tremendously ease the development of an effective and comprehensive emergency plan for a library. The EIS provides a complete "guided tour" through emergency planning and response. It uses carefully integrated emergency management databases with computer graphic map and floorplan displays. We call the EIS a geo-relational database. Following the emergency plan design and completing the analysis and databases provided with the software results in an emergency management capability for any organization that is faced with the need to plan for emergencies but lacks the capabilities to make an emergency plan a high priority.

Most attractively, the capability built for emergency management is also available for daily use in designing exhibits and relocating collections, as well as for a public-access locator of collection sections on computer-generated maps and floorplans of the library. Thus, this emergency tool can be an enhancement to library daily operations and public utilization of the library facility.

Spatial Emergency Considerations for Libraries

The library is not an island unto itself in terms of emergency planning. The community affects the library and is, in turn, affected by any library emergencies. As a result, data alone will only partially prepare the library for disaster. The spatial component of emergency preparedness must be served. A typical graphic mapping of the library would include the following:

- Community map showing major roads, rivers, government buildings, schools and colleges, prisons, etc. The purpose of this map is to place the library in its emergency context. This includes an awareness of emergency resources of law enforcement, medical, fire, and public works and utilities. An action by any of these organizations may impact the library—either supporting a library emergency or impinging on library operations because of an emergency.
- Immediate-area map of the three or four blocks surrounding the library. If on a campus, this would be a campus map. Located on this map would be the footprint (outline) of buildings surrounding the library. An emergency in neighboring buildings may call for emergency response by the library staff.
- Library property map showing all features, including sidewalks, trees, sculptures, gas lines, water mains, and electrical wires and conduits.
- Floorplans of the library showing all permanent structures, walls, and stairways. In addition, overlays of movable fixtures (shelves, tables, etc.) and other changeable components (such as special exhibits) should be prepared.

These display capabilities are always available to support decisions made during a crisis, as well as sustain training, emergency plan development, and procedures review. Next, the library emer-

gency preparedness personnel must turn their attention to databases that interact with these varying map and graphic displays. In this interaction—data being shown in relationship to spatial distance—lies the essence of the EIS as a decision-support tool.

Emergency Planning with a Computer

The EIS provides a complex of information management resources that combine to form a comprehensive emergency preparedness program. Among some of the standard EIS databases are as follows:

- Hazard Analysis. Hazards that are internal to the library and impinge on the library from the outside form this database. Locations of preservation chemicals can be plotted on the graphic floorplans for quick retrieval. In the event of an accident, the computer contains brief response procedures and detailed descriptions of control methods. Outside threats can also be chronicled. Is the library in a floodplain? Is it in an airport flight path? Near a major trucking route? Are there underground pipelines? All of these considerations will help determine the nature and content of the emergency plan.
- Automated Emergency Plan. A complete guide is provided for developing an emergency plan in an easy-to-follow standard plan-writing format. Elements of the plan can be color coded to match stages in library emergency response. Additionally, items in the plan can be linked to the computerized maps and floorplans. Thus, an evacuation plan can be displayed as text, then in seconds become a blinking red evacuation route on a floorplan or a map. Contained in the Auto Plan can be all the procedures for book preservation. Compile all those hints on conservation into an easy-to-follow compendium of emergency procedures with this program.
- Personnel Resources. Who was that woman expert on book preservation after smoke and fire damage that spoke at last year's conference? Enter the word smoke on the Personnel Resources database and the computer will describe her, complete with telephone number, area of expertise, and other information. In the same way, local emergency contacts are quickly available; fire chief, hospitals, volunteers, and anyone else can be added to this flexible database. Moreover, the data merges with a letter-writing program to allow for contact of any of the people or mass mailings to them.
- Resource Management. This inventory of any and all emergency supplies will minimize loss of time when time is short in disaster recovery. Where is the nearest freeze drying equipment? Who has blizzard-quality snow removal equipment? Where can one get large quantities of specialized chemicals to prevent the growth of mold? These seldom-asked questions are the ones that need rapid answers.

Non-Emergency Applications

The key to justifying an automated emergency program lies not just in the inherent common sense of planning for disasters. There are day-to-day benefits as well. Two of these are the system's use in planning for change in the library and in providing a new format for public access to the library.

The computerized floor plans and outside site plans provide a valuable resource for design of renovations, changes in storage, development of special displays and exhibits, and anything else in which library staff need a "computer-aided design" for library facilities. Traffic flow in the library can be plotted and examined on these floor plans. Movement of parts of the collection to a more prominent location can be done in seconds on the computer to see how changes will look before actually making them. Dozens of

other applications await the creative user of the EIS.

Another daily use of the emergency computer system can be in providing a new way for users to explore the library. One of two databases (the Locator or Notepad) offers an opportunity to detail the types of books and their location on the floor plan. The library visitor can select from a menu of different categories of interest—in essence, an abridged Library of Congress card catalog system. Displayed before the user will be the location on the floor plan of items that suit the visitor's interest. A line will be drawn on the computer from the user's present location to the desired location. Think of it as a form of electronic browsing—maybe not for literary purists, but an attention-getting secondary application of an emergency management computer system.

A Clearinghouse for Library Security

The massive fire in the Los Angeles library ought to alert all library personnel to the inherent vulnerability of the cultural resources of which they serve as guardians. The library emergency management system described above is only suggestive of the impressive impact that microcomputer applications can have during such an emergency.

One of the most important potentials of the approach described above is the development of a mechanism for sharing information that is developed by one library and is applicable to another. A national database on library emergency resources easily can result from the local identification of such resources and the merging of databases at a national-level clearinghouse. When special emergency plans are developed by one library, they ought to be placed in a repository for access by others who would modify the plans for their own distinctive needs. In this way, the small effort available in the library community for emergency management activities could be effectively multiplied. Crucial to this maximization of effort is a standard format for plan development and a mechanism for disseminating both paper and electronic versions of credible emergency plans.

The Emergency Information System described throughout this article is an attempt by the emergency management professional community to provide for specialized facility emergency planning. The software and standardized format are available and being used in countless local and state emergency offices. The application of the software and emergency planning capabilities to the library community and the formation of an emergency management clearinghouse are challenges that need to be addressed by the library community in the near future.

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Rats! Oh No, Not Rats!

Gary E. Strong

■ **Emergency management in a large state library agency presents extensive challenges. Several case studies and a statement of historical background provide a framework for presentation of the California State Library's action planning. Current preservation and conservation efforts are documented and descriptions of the library's disaster and security plans outlined.**

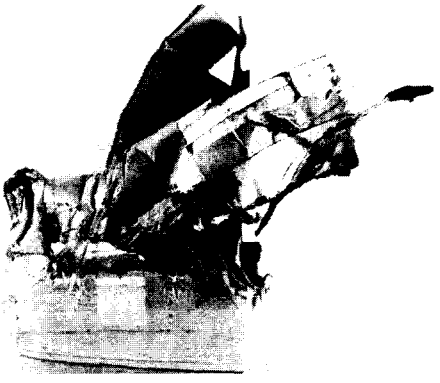
AS planning progressed to address the problem of handling the crumbling of millions of pages of rare California newspapers, the report arrived on my desk that rats had invaded the basement stacks of the Library and Courts Building, and a number of the rare and valuable bound volumes of California newspapers had been breakfast for unfriendly invaders.

"How can this happen now?" is the question that came immediately to mind. In fact, we knew that mice worked the hallways of the building. Glancing across the office, I looked at the rat poison on a small paper plate neatly placed under the radiator. But, the California newspapers! Our heritage, our treasures, and record of the history of communities and the people of California had been violated.

Questions began to erupt. "How did they get in?" "How long have they been feasting on the newspapers?" "Why does all of the rare stuff have to be in the basement anyway?" "Can we catch them?" "Who do we call?" "How fast can they get here?" "Who can we blame?" "Do we have to go out to bid for an exterminator?" "Is there budget money for this?" And so on. . . .

Or, in another case, . . . "that roof should not leak yet." After all, the new building for the Sutro Library had just been dedicated not three years ago; humidity should not be a problem. Thousands of extremely rare books and manuscripts were in jeopardy at the Sutro Library due to a leaky roof and intense humidity encroaching through the unsealed floor. Buckets and portable humidifying units are only so effective in handling such massive problems. Water damage in the extremes of humidity and leakage often leave problems that can go undetected for generations. The growth of mold begins and spreads throughout hundreds of volumes before it is detected in compact storage shelving, which houses rare collections. Similar questions come to mind in this situation as in the last.

The California State Library's central stack tower is a fire trap—13 floors, all



Rat-damaged storage carton in newspaper storage area.

open from basement to roof, with no sprinklers, inadequate fire detection, 30 miles of shelving, and millions of books, magazines, manuscripts, maps, and microforms. The collection, built by generations of dedicated librarians and staff, could be destroyed in a few hours of disaster. The stack tower, built as a separate structure inside an outer building that houses the public service areas of the State Library, is efficient for storage, but a literal nightmare from the standpoint of security and fire safety.

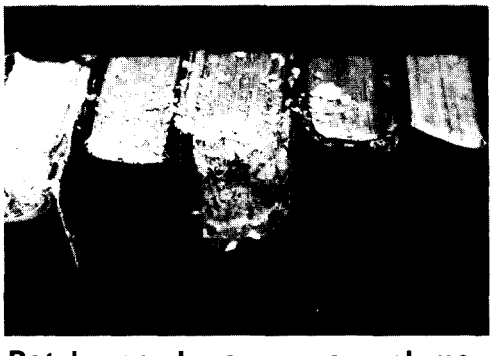
How does management plan for potential disaster? How would we manage a "crisis in the stacks?" Who should be involved? What are the options to save invaluable and irreplaceable resources in the face of disaster? (The fire and devastation to the collections at the Los Angeles Public Library further heightens the fears and urgency of finding answers to these questions.)

These short examples could keep one thinking for some time and, in fact, might be great case studies for library science students enrolled in a course on disaster planning. But, these examples represent a few of the challenges facing the California State Library today.

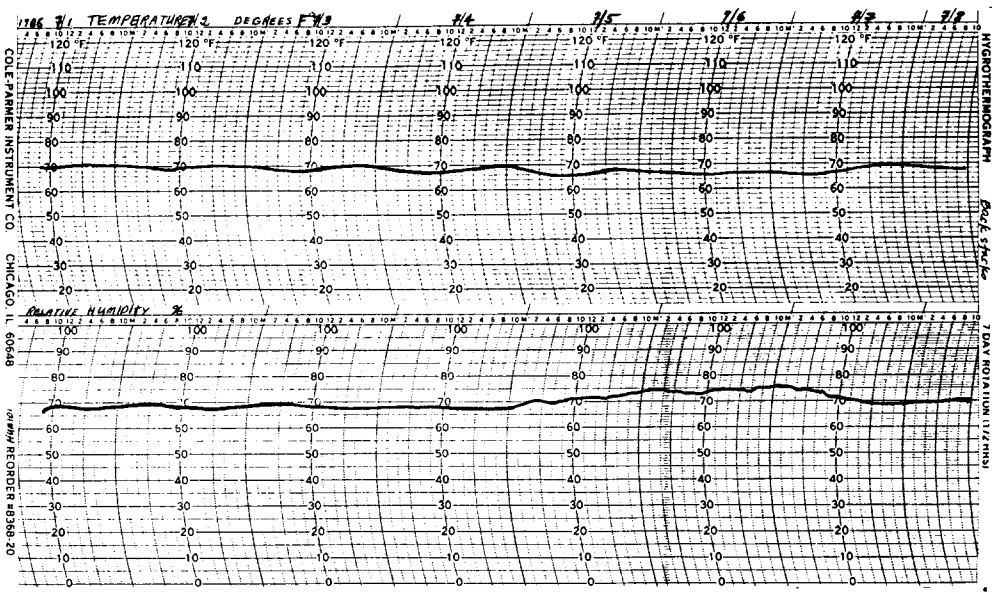
Established by the first legislature in 1850, the California State Library serves as a public research library for thousands of California citizens, researchers, and scholars. Beginning with John C. Fremont's donation of 100 books to form the nucleus of the new State Library, original manuscripts, historic source materials, fine books, maps, pictorial art works, and photographs have been added through private gifts and public purchases. (*1*)

"The date was Jan. 19, 1850 when a wagon arrived at a San Jose building, then serving as the Capitol where California's first elected Legislature had convened. The driver had followed a trail from Monterey carrying a small trunk filled with a hundred books consigned to Peter H. Burnett, who had been sworn in as the first civil governor of California." (*2*) Fremont had learned that the legislature was considering establishing an official library. Built on that fine start, the library and its collections grew through decades of inattention, political love-making, and economic explosion.

The real centerpiece of the collections is the California collection. The State Library has "created one of the foremost regional history collections in the western United States. Its collections of books, manuscripts, periodicals, newspapers, photographs, prints, microforms, maps, ephemera, special card indexes, and its information file offer western historians a unique opportunity for research. (*3*) This collection documents people, places, and events from prehistoric times to the present day. Excluding government publications, the California book collection numbers approximately 70,000 volumes;



Rat-damaged newspaper volumes in the California newspaper collection.



Graph showing high humidity at the Sutro Library Rare Book Storage.

4,000 periodical titles (all about California); 2,400 newspaper titles (including specimen and full run backfiles); 3,000 loose maps and hundreds of maps found in bound volumes; 100,000 photographs (one of the oldest and most comprehensive photographic collections devoted to the Golden State); hundreds of original paintings and prints on California; more than 500 manuscript collections; and literally thousands of pieces of ephemera, including buttons, badges, labels, certificates, posters, menus, calendars, business cards, programs, annual reports, pennants, napkins, coasters, railroad timetables, tickets, and the like. (*4*) Over the years, librarians and library staff have created vast special files and indexes to use with the collection. Many of these files have become massive preservation problems.

The very nature of the collection poses incredible problems of preservation and conservation. Materials come into the collection in every imaginable format and in all conditions. Tattered, torn, and weathered, materials must be individually examined and handled to ensure that they will last the generations. The problems not only encompass the old, well-established collections of the California section, but also new material coming into the collection each day. Thousands of items are accessioned into the collections each year and must be handled as they arrive.

The library's status as a United States Government regional depository and a California complete depository means that the collections grow at a rapid rate. The State Library's collection of 2.5 million government publications and maps forms one of the largest in the West. Because the collection spans 135 years of collecting, it offers the same challenges of preservation as other collections.

The general collections of books, magazines, and newspapers include some of the rarest of materials ever published. Sterling examples of Western Americana and the finest examples of fine press publishing are included. Like many libraries begun in the 19th century, the State Library has an eclectic collection of older books, which form an invaluable resource for the state. Because the State Library's general collection precedes that of many public and academic libraries in the state (the State Library had built a collection of over 100,000 volumes by the

1860s), preserving this resource is of highest priority. After all, the state has not been without its disasters. The 1906 San Francisco Earthquake and fire destroyed virtually all libraries in the city, and the most recent Los Angeles fire saw hundreds of thousands of volumes go up in smoke.

The State Law Library's collection contains not only the usual legal resource material, but many unique resources. Of particular note is the collection of legal material dealing with ownership of large land grants bestowed during the Mexican and Spanish era. The maps (disenos) and deeds were very important to the cases heard by the courts and the United States Land Commission. The collection documents many of these cases and contains contemporary copies of Mexican rancho disenos. Current additions include information on such celebrated trials as Carol (Caryl) Chessman, Charles Manson, and scores of others.

The Sutro Library boasts one of the largest collections of genealogy and local history in the western United States. Thousands of volumes and reels of microfilm have been added to this collection to provide resources for individuals researching the past. This collection complements the 200,000 books and pamphlets that survived the San Francisco Earthquake and State Library fire of 1913. Sutro's acquisitions were extensive, including English pamphlets; pre-1500 printed books; ancient Hebrew manuscript scrolls; books on voyages and travels; Orientalia; studies on the history of science and technology; Lutheran pamphlets, of which 15 were by Martin Luther himself; the first 4 folios of Shakespeare; and the papers of Sir Joseph Banks, who accompanied Cook on his first voyage, sent Captain Bligh to the South Seas, and served as president of the Royal Society. (*5*)

A highlight of the Sutro Library is the collection of Mexicana. The most outstanding section comprises some 12,000 to 15,000 pamphlets printed between 1605 and 1888, the largest collection of its kind in the world. Official government publications include publications of the State of Mexico between 1821 and 1840. There are thousands of books, including the bulk of the surviving books of the earliest academic library in the Western Hemisphere, that of the Imperial College of Santa Cruz de Tlatelolco founded in 1535 by Bishop Juan De Zumarraga and Viceroy Antonio de Mendoza. There are also representative manuscripts, newspapers, maps, atlases, and ephemera. (*6*)

This summary overview can only highlight the incredible resources that must be managed to ensure their preservation for future generations of Californians. That need has long been recognized by the library management and staff. Over many years, programs have been established drawing upon the technology and state of the art at the moment. These various efforts came together in 1983 with the establishment of the library's Preservation Office within the Special Collections and Development Branch. The office brought together three units that had previously been located in different sections of the library: book repair and document conservation, photographic preservation, and newspaper preservation. The mission of the office is to conserve and preserve the rich but deteriorating resources of the State Library.

Several large scale preservation projects have been undertaken in order to protect the collection. Recognizing the tremendous problem of deterioration of its newspaper collection, the library began in the 1940s a program of microfilming its newspaper backfiles of over 19,800 volumes and over 16.4 million newspaper pages to preserve the information for future researchers and to conserve space for storage. During the ensuing four decades, approximately 11,000 volumes were filmed and 60,000 reels of microfilm were added; the library also began to purchase newspapers on microfilm as they were published. This initial effort firmly established the library's newspaper microfilm holdings of currently received titles.

In 1983/84, the library submitted a "budget change proposal" to the gover-

nor requesting funding for a multi-year program of newspaper preservation. The goal of the program was the conversion to microfilm of all back issues of newspapers held in the library's collection. Recommended by the governor and funded by the legislature, the Newspaper Preservation Program was begun. Literally thousands of newspaper volumes had to be collated, missing issues noted, and newspapers packed for filming and checked to ensure that the pages had been correctly captured by the technicians.

The Newspaper Preservation Program will be complete in the 1986/1987 budget year. The accomplishment of preserving on microfilm the remaining 8,500 newspaper volumes and 6.4 million newspaper pages of pre-1945 newspapers has been no easy task. The total project cost was $638,000, a significant investment of funds to preserve this vast resource. (*7*)

The filming of the California Great Register of Voters Indexes for the years 1900 to 1944 was completed in 1986. The Great Register of Voters Indexes is an invaluable collection for historians and genealogists, and was available only at the State Library in original form. The preservation project makes available on film approximately 1700 volumes representing over 1 million pages of text and vital information on millions of Californians. (*8*)

During the summer of 1984, the "Red Tag Rescue" Project was initiated to identify "not-so-rare" books in the collection and transfer them to preservation status. Using a team of summer work-study students, the project identified over 10,000 volumes that met the criteria, and each item was tagged for examination by a collection development officer. The focus of the project was the future: what should be saved now, while it is still available, because it will be hard to find later. The purpose of the project was not to lock the books up; afterall, they were bought to be used. However, designated books will be stored in environmentally sound storage to prevent further decomposition of paper and bindings caused by humidity and pollutants; conservation measures are made to halt or reverse damage from spreading staining, glue on book pockets, and rust from paper clips; and circulation is limited to within the library. (*9*) This important project focuses on the need to "prepare" for the future. Too often we find that libraries have lost their most precious treasures by not realizing they had them to begin with.

The microfilming of the California Information File during 1986 is another example of the major preparation work underway. The file includes entries for materials dating from 1846 to the 1980s. Millions of citations are included that are available nowhere else.

As is typical of libraries, the file was on three-by-five-inch cards. Studies of the file determined that between 10 and 20 percent of the cards were in advanced stages of deterioration and many of the images were fading away. Advanced microfilming technology was used to capture the millions of images in the CIF and its accompanying indexes to San Francisco newspapers. These files will be available in this new format in early 1987. At the same time, the invaluable Government Publications Information File was filmed for security. It is now incumbent upon the staff to plan new methods of indexing and abstracting this unique material to ensure that access is available.

These major projects reflect only a few of the efforts in which the State Library is engaged to manage its resources for long-term preservation—before the emergency strikes. But what of planning for the unforeseen? At the time the Preservation Office was established, planning began for the development of a "disaster plan" for the library, recognizing the special challenges faced by the library because of the housing of the collections.

That planning effort is an ongoing activity which has now included the state fire marshal. The marshal is completing a full investigation of the building and will report on steps the library can im-

mediately take to prepare for emergencies. It is anticipated that this will include moving collections of high value to more secure areas, as well as traditional fire prevention recommendations.

Plans are also being developed to initiate a series of meetings with local fire department personnel who would, in the case of a major fire, be responsible for providing fire suppression. This advance planning and briefing will assist in developing the "game plan" so necessary to save as much of the collection and the resource files as possible in the case of a large scale fire.

The library management will then develop plans to implement these recommendations. In anticipation of some of the findings, the library submitted "budget change proposals" for the 1987–1988 budget for remodeling and relocation of its rare book collection from the stack tower to a more secure area of the building. The fate of that request now rests with the governor and the legislature. There is also continued identification of resource files to be microfilmed for both security and preservation. These files which provide access to materials in the library collections could not be replaced in the event of disaster and represent literally thousands of hours of staff time.

Parallel to the disaster-planning effort is the development of a security plan for the collections. It is apparent that the State Library will have to maintain valuable materials and provide services within the present building for some years to come. Building and collection security needs must be handled: 10 unlocked doors open onto the central stacks, two additional unsupervised exits exist in the basement, and there are no secured lockers for patrons, as well as a number of other security problems. A senior librarian on special assignment for 18 months will coordinate the development of this plan with the director of special collections, the preservation officer, the administrative assistant, and various section heads.

The library space and security project manager will review the literature on security plans for libraries; conduct a security survey of the building with the state police and develop recommendations; review the fire marshal's report; survey appropriate staff responsible for collections needing security measures; and prepare the security plan, draft policy, and procedures for the chief of state library services and the cabinet and state librarian.

From a management standpoint, the planning and preparation for emergencies is vital. Within this context, review of the disaster and security plans, and identification of resource files and collections that need preservation treatment, are part of the regular "management review" process. Each quarter, program managers meet with the state librarian to review progress over the past quarter, identify achievement and problems, and forecast objectives and activities for the next quarter. The respective managers provide updates that serve as the focus for the library's preparedness. Our attention has been piqued following the arson fires in Los Angeles and San Diego of the past three years. We share the feeling of despair, particularly in the massive losses of the Los Angeles Central Library collections. We realize that can happen in Sacramento. Our efforts move us into a position of better handling the emergency should it be necessary.

Incidentally, a new roof is going on Sutro, the floor under the rare book stacks at the Sutro Library has been sealed, the rats have not returned this fall, and the eternal efforts of emergency planning continue.

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Notes from a Congressional Informer

Lynne McCay

■ **Members of Congress need information to make sound decisions. This article looks at the "informed legislator" making decisions about comprehensive emergency management and at the providers of information who play an important role in that process. Services and products of the Congressional Research Service of the Library of Congress, which are used by members of Congress seeking information throughout the legislative process, are discussed.**

THE clacking of the wire service across the room is a constant reminder to me that news is my business. I am an information professional in the Congressional Reference Division of the Congressional Research Service (CRS). For my clients—the members of Congress and their personal and committee staff members—information is a valuable, but not a rare, commodity.

Decision Making and the Informed Legislator

Members of Congress are bombarded—some might say overloaded—with information that comes to them from all sources: the media, special interest groups, the executive departments and agencies, their constituencies, and legislative support agencies, such as the CRS. But our national lawmakers *need* information—precise, accurate, thorough, and timely information—to make decisions. Their individual decisions—on expert witnesses to call and questions to ask at hearings, on background pieces to read, on specialists to consult, on recommendations to follow, on policies to pursue, on causes to champion, on compromises to offer or accept, and on bills brought to the floor for voting yea or nay—are all directional steps in the legislative process. The importance of information in this process as an integral component of decision making on a national scale—decision making which can and often does touch the lives of a great many people—is clear enough.

CRS and the Informed Legislator

While the importance of information to the legislator may seem unquestionable in today's information age, it was not always so self-evident. Congress es-

tablished a library for itself during its earliest days and supported the library throughout the 19th century, providing, among other things, for the purchase of books and newspapers. By the end of the century, it appears that Congress was receiving general reference services from the library, and reading rooms were established for senators and representatives when the separate Library of Congress building was constructed in the 1890s. However, the real impetus for strengthening the information base and nurturing the "informed legislator" came in the early part of this century and was fostered by Robert M. La Follette, Sr., governor and later senator from Wisconsin. In 1914, he introduced an amendment to an appropriations bill, which established the Legislative Reference Service (now the Congressional Research Service) within the Library of Congress. (*1*) For Robert La Follette, Sr., information was the key to sound decision making by the legislators, and he commented on the establishment of the Legislative Reference Service in the following statement "Congress has taken an important step to rendering the business of lawmaking more efficient, more exact, economically sound and scientific." (*2*)

Emergency Management and the Informed Legislator

If information is critical to decision making, and the role of the information provider is, therefore, important in the decision-making process, how much more so is this the case when the decisions have an impact on emergency management policy, an area of public policy planning which has real life and death implications. I believe that the legislator's information needs run parallel to the four phases of comprehensive emergency management: mitigation, preparedness, response, and recovery. Background information (both factual and bibliographic data) on, and analysis of, potential dangers prepare the legislator to deal with the mitigation phase of comprehensive emergency management—that phase which is intended to reduce the probability of a disaster occurring. If legislators know about the potential hazards in a product or a course of action, they can take steps to initiate preventive policies. Legislators cannot provide legislative solutions to potential problems unless they are informed about the probable dangers.

Throughout the history of CRS our information professionals, both librarians and analysts, have been providing Congress with just such background information. For example, I looked through the CRS Main Files in the area of fire prevention and found a variety of reports, including technical background pieces, bibliographies, comparisons of legislation, and fact sheets, designed to help the legislators of the day with their decision making on fire prevention policies (see table 1).

The preparedness phase of comprehensive emergency management—which calls for developing plans to save lives, minimize disaster damage, and enhance disaster response operation—involves legislators and their staffs in action. Their information needs surface at every step of the legislative process as they deal with legislation related to emergency preparedness programs or requirements. Again, in this phase, CRS provides members of Congress with background information, analysis, and factual information to aid them in their decision-making process. CRS responds to Congress in a variety of formats, including personal briefings, in-person reference consultation, "hotline" telephone responses, video and audio programming, analytical reports, and bibliographies; however, two of the more popular CRS products are issue briefs and info packs.

Issue briefs are synopses of current issues, and include an issue definition, background and policy analysis, congressional activities, legislation, chronology of events, and references to further readings. They provide the legislator—in this case, a legislator faced with emergency preparedness planning and policy decisions—with a concise view of the concerns, alternatives, and ramifications of

Table 1. Random Sample of Reports on Fire Protection Prepared by the LRS/CRS

Information Product	Title	Date
Fact Sheet on Legislation	Protection of the Forested Watersheds of Navigable Streams from Fire in Cooperation with the States	April 8, 1929
Fact Sheet on Costs	Fire Losses in the United States from All Causes and from Incendiarism 1932 and 1933	May 22, 1936
Analysis of Legislation	Analysis of Proposed Bill to Establish Standards for Fire Protection	March 3, 1947
Bibliography	Fire Fighting—Selected References	February 28, 1956
Report on Costs	Federal Government Expenditures for Fire Prevention, Protection, etc.	June 6, 1967
Comparison of Legislation	Fire Research and Safety—Present State of the Legislation	July 11, 1973
Background Report and Reader	Tris—A Flame-Retardant Chemical: An Overview	May 26, 1977
Background Report	Fire Prevention and Control: The Federal Role	March 19, 1985

the issue in question. For example, some current issue briefs dealing in part with emergency planning include "Nuclear Powerplants: Emergency Planning (IB86127)," "Hazardous Chemical Facilities and Community Right-to-Know: Current Issues (IB86069)," and "Civil Defense (IB84128)."

Info packs, which are packets of select information on current legislative issues, include CRS reports, issue briefs, recent articles, and bibliographies. For example, the info pack on "Civil Defense and the Effects of Nuclear War" contains the issue brief on civil defense, a Federal Emergency Management Agency report on the national civil defense program, the summary of an Office of Technology Assessment report on the effects of nuclear war, excerpts from a congressional committee print on the economic and social consequences of nuclear attacks on the United States, a selection of articles on civil defense, and a bibliography on nuclear winter.

The response phase of comprehensive emergency management is echoed by the legislator's need for immediate information about the disaster in order to initiate a plan for recovery. It is for just such immediate access to news stories that we have a wire service ticker in my division, as well as televisions (with access to the House and Senate cable systems and the major network and cable news services) in all the congressional reader services facilities where space allows. Today's innovations and technological advances in information storage and retrieval make it possible to provide the legislator with immediate access to databases covering newspapers and news wires from around the country in full text. In my division, and in the CRS reading rooms and reference centers, we conduct searches in a wide range of commercial databases using personal computers in order to provide Congress with comprehensive, accurate, and timely data.

The recovery phase of comprehensive emergency management, intended to return life to normal and to take steps to prevent a repeat of the disaster, again involves the legislator in the entire legislative process. The same mix of background information, factual data, and analysis that is needed during the legis-

lative process in the mitigation phase helps the legislator make informed decisions about necessary legislation in the recovery phase. Disaster-relief legislation has been critical to the recovery process for countless numbers of Americans who have suffered through natural disasters, such as floods, droughts, hurricanes, tornadoes, earthquakes, or volcanic eruptions. Other disasters, like the Teton Dam failure and the nuclear accident at Three Mile Island, have spurred Congress not only to provide relief but to take steps to prevent the recurrence of such unsafe situations. For both types of recovery phase legislation, information is needed for sound decision making from the hearing stage to the final vote.

Librarians and the Informed Legislator

None of us likes to think about disaster striking. Yet, if it does strike, we can be assured that our national legislators are by no means novices nor ill equipped to deal with emergency management needs. I am confident that as new risks are uncovered, as new dangers are made known, our informed legislators will address the challenges of emergency management planning. I am happy to have a small part in the informing process.

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Information Technology Utilization in Emergency Management At Exxon Research and Engineering Company

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The petroleum industry must deal daily with highly complex and volatile processes and products. Minor problems can rapidly develop into major catastrophes, which can be costly in dollars and in the lives and health of personnel. At Exxon Research and Engineering Company (ER&E), substantial effort has been given to setting up safety procedures and actions. In order to prevent emergencies, the Information Services Division (ISD) of ER&E plays a major role by providing the information needed to maintain the procedures and keep the engineering staff aware of potential problems and events that have occurred in other plants. The services offered by ISD are also geared to respond quickly and efficiently to aid engineers fighting to solve immediate problems. This paper describes ISD's information services and how they are used, particularly in the preventative phase of emergency management.

Introduction

ANY corporation involved with the refining of petroleum and chemical products needs to consider emergency management. As a major oil producer and refiner, Exxon has routinely developed procedures and altered processes in order to meet governmental regulations and to safeguard its own investments. As part of Exxon Research and Engineering Co. (ER&E), the research arm of Exxon Corporation, the Information Services Division (ISD) plays a major role in emergency management efforts.

ISD is charged with collecting and retrieving internal and external information resources for the use of corporate personnel. To fulfill its mandate, ISD

maintains information centers at each site and maintains satellite centers at several remote sites. These centers maintain collections of published and internal information as a corporate-wide resource and for the use of local clientele.

To access publicly available, published information, ISD searching staffs use available information technology—both print and electronic—to retrieve pertinent information. For internal information, ISD has developed indexing and retrieval systems in-house, and has adapted other retrieval technology for accessing and organizing its information collections.

This paper describes the information technology developed and used for internally generated and published information and how this information is used to prevent emergencies and to deal with them should they actually occur.

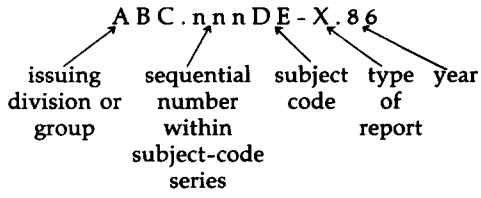
Internal Systems

Within Exxon, information is generated in various formats, most commonly in reports, correspondence, engineering documents, and technical manuals.

Reports System

ISD has collected and distributed ER&E's technical reports since 1928. The first index, issued in 1938, was a 10-year cumulative subject index. Procedures for handling reports have been expanded and updated since then; indexes to reports are now available online and on microfiche.

Approximately 2,000 technical reports are produced annually, by more than 100 Exxon affiliates, in the areas of petroleum refining and products, synthetic fuels, engineering, chemicals, basic research, etc. Each report receives a unique number that identifies the group doing the work, the subject area, and the year of issue. It has the following form:



Two copies of each report are sent to the Florham Park Information Center, where one copy is sent to be fiched and the second is used for developing indexing sentences. These sentences are entered into an indexing system called the Information Management Program (IMP), which was developed in-house and implemented in 1971. Figure 1 shows a report unit record. IMP provides several

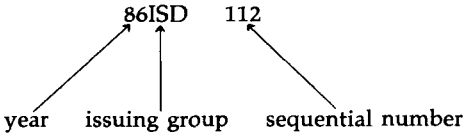
Figure 1. Unit Report Record

Report Number:	CR.11BO.80
Title:	A Comprehensive Study of the Thermodynamic Properties of Perdeuterated Cyclohexane (Cyclohexane-d12)—30 pgs.
Authors:	S.C. Mraw and D.F. Naas-O'Rourke
Corporate Author:	ER&E-Corporate Research
Subject Categories:	BO—Physical Chemistry BA—Analysis and Testing GA—Coal Characterization
Subject Sentences:	Low-temperature heat capacity and ethalpies of solid-solid phase transition and fusion of cyclohexane-d12 determined by differential scanning calorimetry.
	The entropy of ideal gaseous cyclohexane-d12 calculated from spectroscopic data.
	Thermodynamic properties of perdeuterated cyclohexane determined from laboratory and literature data.
	Thermodynamic properties of cyclohexane-d12 determined for studies of solvent absorption in coal pores.

products, the first of which is current-awareness alerts (figure 2). These alerts are sent to numerous Exxon affiliates around the world in order to inform them of ongoing research and improvements in technology. Second, the system produces indexes, including Keyword-in-Context (KWIC) indexes, in the form of computer output microfiche (COM) (figure 3), which are sent to designated Exxon report centers. The third IMP product is a conversion to online format. SDC's ORBIT retrieval software has been purchased and brought in-house to run on Exxon's mainframe. This gives most Exxon worldwide affiliates online access to bibliographic data for retrieval of technical reports.

Correspondence System

The IMP indexing program also provides access to ER&E's internal technical correspondence. Information center assigned reference numbers for the documents include the year, divisional code, and a sequential number, in this format:



The indexing information entered into IMP includes author-written title, author, corporate author, recipient, corporate recipient, date, and reference number. Other information is added as needed. COM indexes are produced by subject (KWIC), author, and reference number.

Use in Emergency Management

Both the reports and correspondence systems keep Exxon affiliates abreast of developments in technology and experiences at other affiliate plants; in this way, future emergencies can be prepared for or usually prevented. If an emergency does occur, fast response is aided by local use of the information technologies available through Orbit and IMP, or by contact with the main information center in Florham Park.

External Information

In addition to internal information, ISD supports well-stocked libraries of published information in both print and electronic form that include specialized collections of safety-related information.

Database Searching

ISD has developed a staff of highly trained and experienced technical searchers, many of whom are experienced chemists and engineers. These searchers are well trained in the use of online commercial databases. They are often called upon to sift through the available information relevant to an emergency at a plant or refinery.

Published Literature Collections

ISD has developed extensive collections of books, journals, and other published literature at each of the ER&E sites. This material can be pulled in response to emergencies or is available for browsing by technical personnel who need to keep abreast of the latest developments or the competition's latest experiences. All this information can then be used to prevent future emergencies.

Special Collections

Exxon promotes a rigorous safety program with the intent of preventing emergencies. Its emphasis is education—teaching employees to operate safely and encouraging them to spot and correct safety hazards before they develop into full-blown emergencies. The information centers maintain sizeable safety collections—textbooks, handbooks, and technical manuals—of recommended operating procedures, standards, and guidelines. Since all of the research and operating units in Exxon routinely handle an extensive array of chemical sub-

Figure 2. Report Alert

Report Alert Proprietary Information	
REPORT NUMBER:	CR.21BD.80
NEW REPORT ON:	CATALYSIS, SURFACE PHYSICS, INORGANIC CHEMISTRY
TITLE:	CATALYTIC HYDROGENATION OF GRAPHITE BY PLATINUM, IRIDIUM, AND PLATINUM-IRIDIUM—22 PGS.
AUTHOR:	BAKER, RTK; SHERWOOD, RK; DUMESIC, JA OF ER&E CORPORATE RESEARCH
KEY TOPICS:	DISPERSION AND REDISPERSION OF PLATINUM AND IRIDIUM PARTICLES SUPPORTED ON GRAPHITE. SURFACE EFFECTS OF HEATING PT-1R CATALYST PARTICLES IN HYDROGEN. SURFACE BEHAVIOR OF BIMETALLIC PARTICLES IN A REDUCING ENVIRONMENT DURING CATALYTIC HYDROGENATION OF GRAPHITE.

Figure 3. Report Indexes

Number Index

CR.21BD.80	CATALYTIC HYDROGENATION OF GRAPHITE BY PLATINUM, IRIDIUM AND PLATINUM-IRIDIUM—22 PGS.
	BAKER, RTK; SHERWOOD, RD; DUMESIC, JA
	DISPERSION AND REDISPERSION OF PLATINUM AND IRIDIUM PARTICLES SUPPORTED ON GRAPHITE.
	SURFACE EFFECTS OF HEATING PT-IR CATALYST PARTICLES IN HYDROGEN.
	SURFACE BEHAVIOR OF BIMETALLIC PARTICLES IN A REDUCING ENVIRONMENT DURING CATALYTIC HYDROGENATION OF GRAPHITE.

Subject (KWIC) Index

CATALYTIC HYDROGENATION OF GRAPHITE BY PLATINUM IRIDIUM AND PLATINUM-IRIDIUM	CR.21BD.80
CATALYTIC OXIDATION OF GRAPHITE BY IRIDIUM AND RHODIUM	CR.2BD.80
INHIBITION OF SINTERING OF IRIDIUM/ALUMINA CATALYSTS	EL.4BD.80
THE MECHANISM OF OXIDATION OF IRON AND IRON-CHROMIUM ALLOYS IN DILUTE CHLORINE GAS	SR.7DG.80
MECHANISM OF CHLORINATION OF IRON AT ELEVATED TEMPERATURES	SR.12DG.80
THERMO-MAGNETIC STUDIES OF IRON COMPOUNDS IN COAL CHAR	EE.6GA.80

Author Index

BAKER, LE	SR.5BO.80	VAPOUR PHASE ADSORPTION MEASUREMENTS OF C6 HYDROCARBON MIXTURES ON SYNTHETIC FAUJASITE—16 PGS.
BAKER, RTK	CR.8BV.80	CHEMISORPTION PROPERTIES OF IRIDIUM ON ALUMINIA CATALYSTS—4 PGS.
	CR.21BD.80C	CATALYTIC HYDROGENATION OF GRAPHITE BY PLATINUM, IRIDIUM AND PLATINUM-IRIDIUM—22 PGS.
	CR.6BD.80	CATALYTIC OXIDATION OF GRAPHITE BY IRIDIUM AND RHODIUM—10 pgs.
BALDWIN, FP	ET.5CW.80	POLYOLEFIN ELASTOMERS BASED ON ETHYLENE AND PROPYLENE—25 PGs.

stances, the safety and reference collections also include numerous compilations of physical property, reactivity, and toxicity data of chemical substances. The proprietary collections contain thousands of technical manuals, design specifications, company standards, and pertinent technical correspondence, which help ensure that refining and chemical processing units and related technologies are built and later maintained according to safe and reliable standards.

Providing Published Documents

No matter how extensive a collection, there is no possible way to ensure that all material which will ever be needed by clients will be immediately available. To provide material that is not available on site, ISD has contracted with several document suppliers to procure needed published literature. Special consideration has been given in these contracts to emergency management, in that all services provide rush delivery within 24 hours. If faster service is needed, arrangements have been made with local public libraries and universities to allow on-site ISD personnel to make copies or borrow material. For this, OCLC is often used to determine where material can be found quickly.

Internal Information Collections

ISD's information centers house extensive collections of design specifications, technical manuals, mechanical catalogs, drawings, and technical correspondence for much of the processing equipment throughout the company. Engineers can refer to these collections if equipment failures occur. In such emergencies, engineers can obtain information regarding the design, construction, repair history, and operating history of the faulty unit. In addition, to meet the major objective—to repair the equipment as quickly as possible—the repair team can find information on each piece of equipment that was used to construct the unit, as well as the names and addresses of vendors from whom replacement parts can be purchased.

Information Technology Use in Emergencies

ISD has developed, based on its information technology, an extensive network to transfer information throughout Exxon. This information plays a major role in Exxon's efforts to mitigate or prevent emergencies and to prepare procedures for responding to emergencies.

Most often, ISD is asked to provide information to prevent possible hazardous situations from becoming real emergencies. This has been true particularly in recent industry-wide experiences with stress corrosion cracking. After an explosion at a non-Exxon refinery a few years ago, all refiners became very concerned with the problem of stress corrosion cracking. This type of corrosion damages from the inside out, with results not obvious externally. Nor is the corrosion always visible during routine inspections. ISD's information centers were asked to gather all internal and external information available on the subject and to continue to monitor the available information on corrosion and inspection methods. Through this interaction between information and technical professionals, Exxon has been able to avoid serious stress corrosion problems at its refineries and plants.

Exxon's major efforts are to prevent emergencies, not only to prevent the possible loss of life or property, but also the unplanned shut down of plants. When a plant or refinery must shut down unexpectedly, the cost to the owner can run up to a million dollars a day. It is therefore critical that unplanned shutdowns be prevented. One factor in such prevention is keeping track of the latest developments in technology via the information systems which are in place. This information can also include how best to handle a problem when it develops, so as to minimize down time yet operate safely.

Conclusion

ISD has developed information technologies to access and retrieve company and published information whenever it is needed. One component of ISD's planning has been emergency management. Because of such planning, ISD has developed information systems that are always ready to respond to emergency situations, but which also play a vital role in the prevention of emergency situations by providing information to those in the plants who need it.

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Potential Roles of the Public Library in the Local Emergency Management Program:

A Simulation

Agnes M. Griffen

In this article, the director of a large urban county library responds to an invitation from the director of the county's Fire and Rescue Services Department to make suggestions on improving communication and coordination between the library and the County Emergency Management Program. Recommendations are made for potential public library involvement in the four phases of comprehensive emergency management: mitigation/long-term prevention, preparedness to respond, response to emergencies, and recovery (short and long term).

The Setting

THE Druid County Department of Public Libraries delivers a wide range of public library and information services to approximately 56 percent of the county's 630,000 residents. After roads, the most often used county-provided public service on a voluntary basis is the public library. Many residents here have college degrees and work for government services or knowledge-based corporations, in areas ranging from software research to biogenetic product development. There are many two-income families, and a majority of women with children work outside the home. Citizens participate with vigor and devotion in the workings of local government and seem to believe, along with their elected and appointed officials, that managing a county or a city is a doable task.

This urban county library, adjacent to the nation's capital, is 1 of the top 10 circulating libraries in the country. There are 650 full- and part-time employees; half are librarians with masters' degrees. Close to 2 million information and ref-

This bus serves as a "Mobile Command Post" for disaster management in Montgomery County, MD.

erence queries are answered in 19 library facilities of varying sizes, with 4 regional libraries providing seven-day service during the school year and 15 community and small branch libraries that offer from 56 to 32 hours of service a week. A countywide Special Services Region provides outreach and coordination of system-wide services to all special needs groups, from handicapped to homebound, incarcerated to institutionalized, as well as to multilingual residents and other cultural minorities.

The director of the department has emphasized the fact that the library system is an integral part of county government. Previously, she proposed and led two interdepartmental task forces on information management and on multilingual services, in order to demonstrate that the public libraries were active members of the county government's team. Last year, the director proposed the establishment of a county government archives, which will open next year as a branch of the public library.

During her six-year tenure with Druid County, the director has had several opportunities to practice emergency management within the department. Arson destroyed a community library six months before the larger building scheduled to replace it had been completed. Insurance replaced the book collection that had been burned. Recovery from the disaster only four months after assuming her first command had taxed her organizational skills and made great demands on an inexperienced staff. The staff had had to gather facts and make contingency plans for interim service and deployment of branch staff and a hundred other details, all within the first few weeks after the fire.

Over the same period, crisis management had become a way of life in the department. The inadequacies of the new automated circulation system combined with contractual problems forced severe limitation of use of the system to maintain response time for basic public service functions. Numerous disastrous periods of extended downtime had resulted in gridlock from tubs of returned books, forcing the closure of the largest circulating regional library on one occasion. The director now requires notification in person and immediate attention to any computer crisis. The department's Crisis Management Team's response-time performance measures are considered as important as the response time of the circulation system.

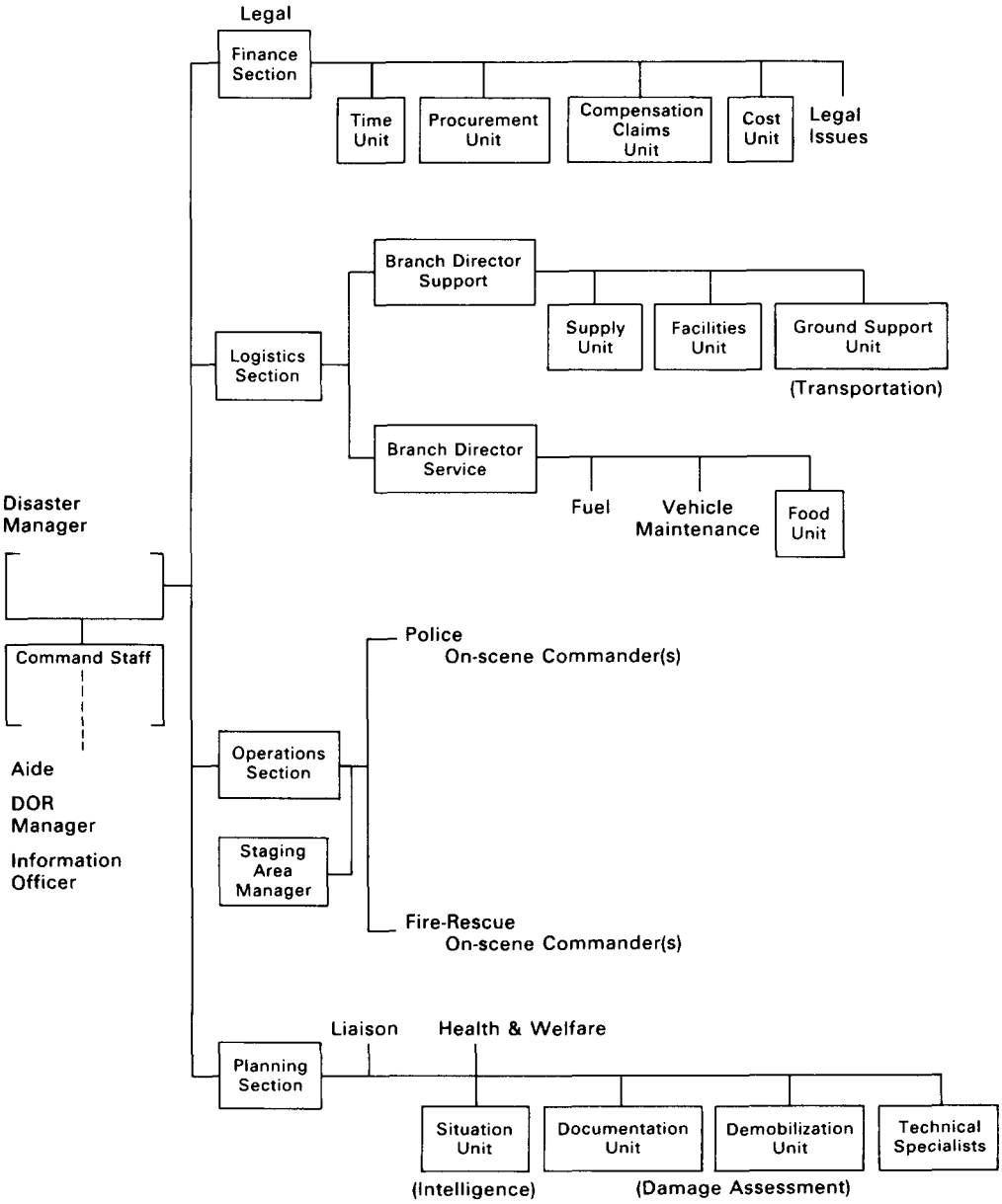
More recently, two libraries served as shelters for library employees and users who had been caught in an ice storm overnight. Since the county's emergency plan targets the public school buildings as primary shelters, it had not seemed feasible to stock libraries with blankets and other emergency supplies. This incident did raise questions about how prepared the library facilities should be, even if for only occasional use as shelters.

Finally, the library department has a formal emergency management system of its own, with procedures set forth in a red notebook labeled "HELP!" It is supported by a system of telephone tree messages, with an officially designated "Keeper of the Beeper" for after hours notification of management of any problem staff may have in public service branches. The director is called at home about every two or three months in a countywide check on the Disaster Notification System, which is a basic component of emergency preparedness.

Within this context the director was

intrigued by the memorandum she received from the director of Fire and Rescue Services, announcing the hiring of a new manager for the Emergency Management Planning and Disaster Preparedness Program. What could the public library offer? The situation could serve as another opportunity to raise awareness within the county of the contribution public library workers are able to make to the better functioning of government in yet another arena.

Figure 1. Druid County Disaster Command System



The Exchange

TO: Director, Department of Public Libraries

FROM: Director, Department of Fire and Rescue Services

SUBJECT: New Directions for the Emergency Management Program

I am pleased to introduce a new member of my staff for the Emergency Management Planning and Disaster Preparedness Program, Carolyn G. Brown. Ms. Brown will be replacing Joan Johnson as program assistant, and will be working directly with Matt Peterson in coordinating the administration and planning of emergency management programs.

Ms. Brown is a graduate of Northwestern University and the University of

Figure 2. Druid County Disaster Management System—Command Staff

Functional Units	County Staff and Depts. Involved	Responsibilities
I. COMMAND STAFF		Overall management of the incident, including staff functions to support the command function.
A. Disaster Manager	Director of a public safety department (fire & rescue, police, environmental protection, health, transportation)	Incident activities, including development and implementation of strategic decisions, and approving the order and release of resources.
B. Chief Administrative Officer	CAO, Office of County Executive	Assess extent of emergency & determine need for Disaster Command Staff; coordinate with local elected officials; oversee media relations.
C. Disaster Operations Room (DOR) Manager	Appointed by Disaster Manager from same public safety department	Provide status updates, maps and resources; coordinate support activities (security, repair, etc.) in the Emergency Operations Center (DOR). Prepare and document action plans. Maintain accurate & complete incident files; provide duplication service; pack and store incident files for legal, analytical, and historical purposes (vital records).
D. Aide/Communications Officer	Communications Unit Leader, Dept. of Fire & Rescue Services or Police	Organize and manage all communication paths; assess needs and limitations; set up equipment accountability systems; maintain communications logs; supervise police, fire rescue, and volunteer communications operations.
E. Information Officer	Public Information Officer, Office of the County Executive	Coordinate with CAO and Disaster Manager on issuance of press releases; handle incoming public inquiries through Information & Referral; coordinate statements to press with police PIO; set up rumor control center; handle inquiries from parents/families of injured or deceased.

Michigan, with almost 10 years of county service as an investigator and administrator with the Department of Health and the Department of Environmental Protection. She is also a volunteer firefighter and fire service instructor, and is active in a number of volunteer and community organizations.

The Department of Fire/Rescue Services, as you may already know, presently coordinates programs aimed at preventing disasters, where possible, and improving the readiness and response capability of the county in the event of an emergency or disaster. Events include both natural and man-made occurrences, such as hurricanes, tornadoes, severe ice storms, power failures, severe fires, a major building collapse, flooding, radiological accidents, or an attack.

As part of our continuing effort to improve our response capabilities, we are looking at new directions for the Emergency Management Program. Ms. Brown would welcome your suggestions on how we might better serve our community by better communication and/or coordination with your organization. If you should have any questions, or if you would like to discuss your suggestions with Ms. Brown, you may reach her by writing directly to this office, or by calling her at 251–2470. We look forward to hearing from you in the very near future.

Figure 3. Druid County Disaster Management System—Planning Team

Functional Units	County Staff and Depts. Involved	Responsibilities
II. PLANNING TEAM	Under control of Disaster Manager	Collection, evaluation, and dissemination of long-range strategic information about the incident. Assess the amount of damage, make recommendations on health & welfare concerns, provide technical specialists, serve as liaison with outside agencies, coordinate resources of cities, make recommendations on demobilization.
A. Team Leader	Director, Dept. of Environmental Protection (or other dept. head)	Gather and analyze all data on extent of damages. Develop long-range strategic plans. Conduct planning meetings and make recommendations for each operational period.
B. Liaison with Outside Agencies	Staff from Dept. of Fire & Rescue Services	Maintain records, notify outside agencies (Regional Council of Governments, other municipalities, utility companies, etc.), request assistance as authorized by Disaster Manager.
C. Health Officer	Director, Dept. of Health or designee	Assess implications of incident on health and welfare of general public and environment.
D. Damage Assessment Leader	Staff, Dept. of Environmental Protection	Collect, organize, evaluate, and display information on damage reports, and make recommendations on need for outside assistance.
E. Representatives of Major Incorporated Cities	City Managers or designees	Implement mutual aid agreements and access specialized resources from cities.
F. Other Officials as Needed	Technical specialists, depending on nature of disaster.	Provide technical assistance in fire, water, environment, resources, and training.
G. Demobilization Unit Leader	Staff from unspecified department	Make recommendations on deactivation and demobilization of public and private resources, and return to routine operations.

TO: Director, Department of Fire and Rescue Services

FROM: Director, Department of Public Libraries

SUBJECT: Suggestions for Public Libraries Involvement in the Emergency Management Program

Thank you for informing the Department of Public Libraries about your new program assistant for the Emergency Management and Disaster Preparedness Program. In response to your invitation to make recommendations for improving communication and coordination with our department, I have had several discussions recently with Ms. Brown and her staff as to how public libraries could be of assistance in the county's Emergency Management Program.

After reviewing the duties and responsibilities of the five functional units that are activated in an emergency or disaster (command, planning, operations, logistics, and legal-financial), as well as familiarizing myself with the four phases of comprehensive emergency management (mitigation, preparedness, response, and recovery), I offer the following recommendations on library involvement in emergency management.

General Recommendations

Mitigation / Long Term Prevention

1. The department's Municipal Reference Service, located in the Stonebrook Regional Library, can provide to the Department of Fire & Rescue Services a current awareness service, which would alert staff to current publications available on emergency management and disaster preparedness topics. The department is a member of the Local Government Information Network (LOGIN) database, which is online to some 275 local and state governments around the country. LOGIN can also be used to query other municipalities on specific topics and to provide names of contact persons and technical experts in areas of interest.

Figure 4. Druid County Disaster Management System—Operations Team

Functional Units	County Staff and Depts. Involved	Responsibilities
III. OPERATIONS TEAM	Under control of Disaster Manager	Coordinate field operations of police and fire and hazard control. Gather and convey information to DOR on status of emergency, from on-scene command bus and/or staging areas. Decide on, order, and mobilize for evacuation.
A. Incident Commander	Fire Chief or Police Commander or designee (as appropriate)	In charge of the incident at the scene, directed from the command post or command bus.
B. Police On-Scene Commander	Senior Police Officer Police Dept.	Mobilize and direct strike teams and task forces of police personnel at scene of incident and at staging areas. Order and mobilize evacuation and coordinate temporary shelters.
C. Fire & Rescue On-Scene Commander	Senior Fire Officer from independent fire companies	Mobilize and direct strike teams and task forces of fire-rescue personnel at scene of incident and at staging areas. Direct hazard control, handle casualties, and coordinate with hospitals and coroners.
D. Public Information Officer	PIO from police or Fire & Rescue Department	Coordinate on-scene media response with DOR-PIO.

2. Under its current contract with the archives management firm that operates the county archives, the department will provide technical assistance to the Emergency Management Group, headed by the chief administrative officer, to locate and identify vital records and to develop a protective storage program to preserve these records. (Vital records are defined as that information needed to ensure continuity of government in the event of a disaster.)
3. Public libraries routinely collect and disseminate information in both print and electronic formats for the general public in all areas related to disaster prevention and mitigation efforts, including building and safety codes, weather history, zoning and land use management, history of catastrophic events, preventive health care, etc. A more careful effort could be made to include more comprehensive information relevant to long-term activities that reduce the effects of unavoidable disaster. Suggestions from emergency management (EM) staff would be most welcome.
4. Public libraries could be utilized to inform the general public or residents of a specific community or neighborhood about emergency management systems, plans, procedures, activities, and problems through the following:
   - Distribution of descriptive brochures, flyers, and other free public information publications about EM;
   - Distribution of specialized publications on EM translated into languages of target populations (Spanish, Chinese, Vietnamese, etc.);
   - Providing decentralized information resource files in 19 communities around the county as part of the libraries' reference services for use by students, interested citizens, and community organizations, under either routine or emergency operating conditions; and
   - Co-sponsorship with fire and rescue services of public programs about EM issues and concerns to take place in library meeting rooms.
5. Cellular telephones could be installed in the department's fleet of three delivery trucks and vans, three bookmobiles and book vans, and two assigned cars, making it possible for county employees driving these vehicles to alert the Communications Center to incidents that may occur along their routes.

Preparedness to Respond

1. Library staff, particularly senior-level line managers and program coordinators, could be trained to serve as observers and evaluators in all five functional areas during disaster exercises.
2. The Department of Public Libraries could and probably should develop its own evacuation plan for employees and members of the public who hap-

Figure 5. Druid County Disaster Management System—Logistics Team

Functional Units	County Staff and Depts. Involved	Responsibilities
IV. LOGISTICS TEAM	Under control of Disaster Manager	Coordinate with other agencies to provide supplies, equipment maintenance, and fueling and feeding in support of the incident.
A. Team Leader in DOR	Director, Dept. of Transportation (or other dept. head)	Make policy decisions and direct/ decide on resource allocations.
B. Logistics Officer on Command Bus	Staff from Dept. of Transportation	Coordinate and relay all logistics/ resource requests to DOR or directly to suppliers.

pen to be in libraries when an incident occurs in the neighborhood. EM staff would have to provide assistance in training and coordination with overall EM plans.

3. The department could prepare an inventory of departmental resources that could be made available to the Emergency Management Group in the event of an emergency specific to one or more regions or neighborhoods served by a specific regional or smaller library. Such resources could include: communications equipment, such as TDD's for the deaf; personal computers and office automation system terminals; cable-video monitors and cablecasting capabilities; office supplies; community information files; meeting room space; and space for staging areas, camps, or shelters.

Response to Emergency

1. Senior-level library line managers, program coordinators, and other staff with relevant skills could assist in staffing emergency operations centers as managers or staff in the following functions:

Figure 6. Druid County Disaster Management System—Legal-Finance Team

Functional Units	County Staff and Depts. Involved	Responsibilities
V. LEGAL-FINANCE TEAM	Under control of Disaster Manager	Issue and draft Declarations of Emergencies; advise on legal issues, such as convening of legislative bodies and need for emergency legislation or additional emergency powers; advise on financial concerns.
A. Team Leader	County Attorney or designee, Office of County Attorney	Evaluate and advise on all legal issues, including emergency legislation.
B. Procurement Officer	Staff from Purchasing Division, Dept. of Finance	Administer all financial matters pertaining to vendor contracts.
C. Compensation/Claims Officer	Staff from Risk Management Division, Dept. of Finance, and staff from County Attorney's Office	Oversee completion of compensation-for-injury forms, maintain file of injuries and illnesses associated with incident, obtain witness statements in writing. Handle investigation into civil tort claims, maintain logs on claims, obtain witness statements, and document investigations.
D. Cost Unit Officer	Staff from Accounts Division or Revenue Division, Dept. of Finance	Provide cost analysis data for incident, maintain accurate information on actual cost of assigned resources, and provide input on cost estimates to planning function.
E. Time Unit Officer	Staff from Accounting Division, Dept. of Finance and from Office of Personnel.	Ensure recording of daily personnel time and overtime documents and equipment time reporting.

- public information,
- documentation and display of information,
- intelligence gathering and analysis,
- recruitment and referral of volunteers,
- procurement,
- shelter management, and
- communications (translation and interpretation) with language minorities and handicapped.

2. The department's central Telephone Reference Service (located in the Stonebrook Regional Library across the street from the Disaster Operations Room) could be designated as a back-up system for the Public Information Office's Information and Referral Unit. Appropriate equipment, communications lines, and training would have to be provided.

Recovery (Short and Long Term)

1. One or more public libraries could be designated as Disaster Assistance Centers, providing space for federal, state, or county workers to gather information from the public about actual damages, to assist in referring affected citizens to health treatment and counseling programs, and to collect and process claim forms, etc.
2. Staff, resource files, and equipment in libraries so designated could be provided to support public information, record keeping, or referral functions during the disaster recovery period.

I look forward to discussing these recommendations with you and your staff in the near future. Thank you.

TO: Director's Administrative Council

FROM: Director, Department of Public Libraries

SUBJECT: Public Libraries Involvement in the County Emergency Management Program

Attached is a proposal to the director of Fire and Rescue Services on the potential roles of the Department of Public Libraries in the county's Emergency Management Program. Please come to the next DAC meeting prepared to discuss what you believe are the most preferable and feasible roles. Your comments on any specific recommendation will also be welcomed.

Thank you.

TO: Readers

FROM: Director, Druid County Department of Public Libraries

SUBJECT: Request for Feedback

Please send your comments to:

Agnes M. Griffen
99 Maryland Avenue
Rockville, Maryland 20850

Or Call (301) 279-1401.

Acknowledgments

The author would like to thank Kathleen Henning, program assistant of emergency management at the Department of Fire and Rescue in Montgomery County, Maryland, for her invaluable assistance in developing the series of illustrations included in this article. The author would also like to thank Martha Jane Zachert, to whom she remains eternally grateful, for teaching her sustained simulation teaching methods.

Agnes M. Griffen has been director of the Montgomery County Department of Public Libraries in Rockville, Maryland, since 1980. She has taught courses in library administration at the University of Arizona and University of Washington.

The Potential for Development of a Clearinghouse for Emergency Information in the Public Library

Lynn L. Magrath
Kenneth E. Dowlin

■ **This article presents the role of public library service as it relates to the creation and dissemination of an online clearinghouse for emergency information. The article details the four phases of comprehensive emergency management—mitigation, preparedness, response, and recovery—and the role a clearinghouse for emergency information would play in providing information for all four phases. The Pikes Peak Library District (PPLD), which is internationally recognized for its innovative computerized library system, has had extensive experience in creating networks of community information. The agencies and organizations involved are briefly outlined in this article.**

AS libraries become increasingly sophisticated in their use and creation of networks, many new and desirable possibilities for the collection and dissemination of community information are presenting themselves. The creation of an online clearinghouse for emergency information is one of these potential community information networks.

As the site of intense community growth and change, the region served by the Pikes Peak Library District (PPLD) has the potential for many emergency/disaster situations.

Background

With the presence of the North American Air Defense Command (NORAD) and the new Consolidated Space Operations Center (CSOC), as well as the Air Force Academy and several other large military installations, the Colorado Springs area has created great potential for terrorist attack and hazardous material emergencies. These facilities also generate more than the usual concern for civil defense in case of war or nuclear attack.

The recent influx of high-tech firms to

the Pikes Peak area has increased the likelihood of hazardous materials and toxic waste escaping into the environment. Interstate 25, which runs through the middle of the United States, is now a major route for these materials.

Natural disasters are not frequent, but they are swift and comprehensive when they strike. Flash floods, tornadoes, high winds up to 150 mph, and, more frequently, heavy snow are some additional emergency situations for which an effective clearinghouse for emergency information could provide assistance as part of a comprehensive emergency management system.

The Pikes Peak community is unique in several ways. The major segments of the economy are military installations (there are five major ones in the area), tourism, electronics manufacturing, agriculture, and mining. The average education level is high, and is claimed to be the highest education level of any U.S. area of its size. The average adult, 25 years or older, has completed 12.3 years of school; 61.1 percent have completed high school and/or have gone further in education.

The Library's Role in Providing Community Information

The PPLD is the public library providing both traditional and innovative library services to those living in the Pikes Peak region and El Paso County. PPLD includes two major, full-service facilities: Penrose (in the center of downtown and the western half of the population for the library district) and the new East Library and Information Center (at the center of the eastern half of the population for the library district). There are also seven branch libraries located throughout the area, a county jail library, and three bookmobiles. The two full-service facilities are headquarters for extensive information and reference services, the major portion of the library's collection, as well as for district-wide library functions, such as management, technical services, communications, and computer system activities.

The library district was formed in 1964, and the Penrose Public Library building was built in 1968. PPLD's present book collection is 452,445 volumes. The 1985 circulation was 1,023,742; telephone and walk-in service was provided for 535,617 people at the main library. The 1986 budget was $3,348,480, provided primarily from a two-mill levy from El Paso County property owners. The number of registered patrons in 1986 was 110,000, about one-third of El Paso County's total population of 360,200.

On November 4, 1986, district voters approved an increase of the library's mill levy to four mills, which will be used to staff the New East Library and Information Center and four smaller facilities that will serve the eastern half of the fast-growing district.

The library's basic service premise is the individual's right to information. The PPLD Board of Trustees endorses a service philosophy consisting of three goals:

1. To serve the community as its information center by providing a trained staff, a database of community information, and information resources to which individuals can be linked to find information.
2. To serve the community as its materials resource center by providing a collection of books and other materials from which patrons can find information and knowledge.
3. To serve the community as its communications center by providing an electronic capability to link individuals or organizations with information possessed by other individuals and groups.

Early on, the importance of local information was recognized, and, in 1978, PPLD initiated online service for community resource files. It was the first library in the country to do so. Ready and convenient access is available through a single telephone number, 471-CALL, which is connected to the information desk and primarily used for accessing the

community resource files. The library's computer provides this access quickly and efficiently as it records, stores, and retrieves valuable local information that is often regarded by public libraries as elusive and difficult to acquire and manage. This information is available online directly to people's homes through their home computers, as well as in the library itself. The library currently has over 3,000 home computer users registered to use the library's information files and public access catalog from their homes.

Library staff and management have used this unique approach to meet information needs of patrons whose most immediate needs concern their survival in the community. The files are designed to respond to inquiries in the areas of consumer affairs; public affairs; health care and welfare services; social security problems; housing, food, and transportation concerns; employment; city services; social and interest groups; local events; daycare; local documents; adult learning opportunities; and carpooling. As a valued resource and active participant in the community, the library finds itself a logical source and dissemination point for this information.

The following are among the agencies and organizations the library has worked with to create this network of community information:

Citizen's Goals: A community project to get grass roots participation in community decision making. Gave the library $52,000 to create a clearinghouse for information on regional growth and local documents.

City and county governments: Declared the Pikes Peak Library District an official depository for their documents. The city is considering placing the city code on the library's computer and updating it online to make it immediately accessible to the public.

The federal government: Funds Ridefinders, an award-winning system created to match carpoolers.

Pikes Peak Area Council of Governments: Has given its entire library of planning documents to PPLD for inclusion in the Local Documents Database.

Pikes Peak United Way: Uses the library's online system and helps update the information in library files.

The Urban League: Contracts with the library to provide an online listing of licensed day-care centers.

The University of Colorado at Colorado Springs, the U.S. Air Force Academy, and Pikes Peak Community College: Pikes Peak Library District is networking with these universities and will soon have their holdings available online in the public library and to the library's 3,000 home users.

The key to the success of these ventures with other agencies has been the library's ability to identify and clarify the goals that are common to both the library and these organizations, as well as the ability to build computerized databases and to update them with accurate and timely information.

Creation of a Clearinghouse for Emergency Information

The work the library has done with automation and with other community and governmental agencies has set the stage for the creation of a clearinghouse for emergency information. Such a clearinghouse would focus on providing information for all four phases of comprehensive emergency management:

1. *Mitigation:* The activities which reduce the probability of a disaster.
2. *Preparedness:* Plans to minimize the impact of a disaster.
3. *Response:* Provision of emergency assistance in a disaster.
4. *Recovery:* Returning life to normal.

The library's extensive databases and community contacts contain the superstructure for creation of the mitigation phase.

Mitigation

The background data already collected on potential, natural, and human-generated disasters are indicative of the type of information that can be available online, as well as in hard copy, for those hoping to anticipate and avert potential disasters. For example, maps and background information on old coal mines, and drainage and flood plain areas, are available to developers, officials, and home buyers at the library. Much more could be done by the library and local officials to add to and publicize this information, which would potentially mitigate future emergencies.

Preparedness

The clearinghouse's role in preparedness should be a combination of providing up-to-the-minute information on the status of the disaster, forecasting potential natural disasters, and marketing the clearinghouse as the source for the latest information.

Up-to-the-minute, "state-of-the-emergency" information would not be designed to conflict with any other disaster-related service, such as 911, which takes calls for help. It would be designed online to receive up-to-the-minute information direct from the people who are monitoring the disaster (for example, the National Weather Service, the Police Department, and the Health Department). It could consist of an immediate response map, which would allow the person dialing in to input information directly pinpointing the areas of current and anticipated flooding. The same system would then serve for the person who wished to know if their home was in the path of the flood. They could dial directly into the system with their home computer or could request the information over the phone from a librarian. PPLD currently has a map laid out in a mile matrix of the entire county, which was acquired for the carpool match service. A new geocoding system enables the library staff to input an address and pull the map for that area up for viewing within seconds.

The second component would be forecasting. After developing and inputting the background data on previous flooding incidents, it would be possible to compute the likelihood of an adjoining neighborhood being flooded.

The third preparedness component could be a definition section, as the terminology used might not be familiar to all users.

Marketing could include a series of programming on disaster preparedness, and the distribution of emergency information through existing community contacts, such as Welcome Wagon, United Way, service clubs, the media, schools, and agencies serving the elderly and handicapped.

The immediate response maps and data could obviously be used as a mitigation tool, as the data for forecasting would be readily available and could consolidate not just whether data but geographic and potential response factors as well.

Response

While the public warning component could certainly be a part of the emergency clearinghouse system, warnings would be handled most appropriately through the media as it is now. However, the clearing house number would be available for people to call for more geographically specific information. This would not only provide more detailed information to the general public than is currently available, but it would also free up the agencies dealing directly with the emergency situation, which could potentially increase their response effectiveness. In the case of a heavy snow, people could find out which streets the city cleaned first, and those on the priority list, so they could more safely and easily get to work or school.

In addition, the geocoding feature could be used online by the responding agencies to target areas and pinpoint their

teams of people in the field. As they input information into the system, the general public would also get immediate feedback on how close the response teams are to their location.

Recovery

A great deal of the information needed for recovery from a disaster is already in PPLD's computer. Temporary shelter sites, child care services, and emergency medical care facilities are all part of the files. Additional shelters and short-term aid facilities could be added as they became available. Subject headings, such as "disaster relief," could also be added to all agencies that provide such so that they could easily be retrieved in one search. Documentation for the process of sorting out and understanding the disaster could easily be incorporated into the Local Documents files in the form of the Economic Impact Studies and New Land Use Planning documents.

As these examples illustrate, the potential for creating a clearinghouse for emergency information in the public library is very good. In fact, the superstructure, in terms of both automation and community contacts, for such a system already exists at the PPLD. As PPLD continues to increase its ability to develop and serve as the community information center, the idea of the library functioning as an emergency information center becomes more and more viable.

Lynn L. Magrath serves as deputy director for the Pikes Peak Library District in Colorado Springs, Colorado.

Kenneth E. Dowlin is the director of the Pikes Peak Library District.

SPECIAL
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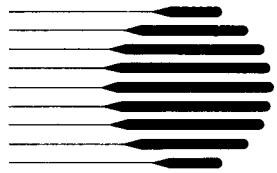

Global Information Access—Expanding Our World

"Global Information Access—Expanding Our World"

SLA's 78th Annual Conference

THE challenges and opportunities involved in the worldwide transfer of information is the theme of many of the sessions scheduled during the Anaheim Conference. If you are new to the library field, your attendance will prove to be an enriching experience. If you are a seasoned professional, this conference will provide the most advanced information available, brought to you by practitioners in the field. The SLA Anaheim Conference is one you won't want to miss!

General Sessions

Dr. Arno Penzias is the magnetic speaker who will address General Session I, "Global Information Access." As vice-president of research and development at AT&T Bell Laboratories, Dr. Penzias is responsible for a wide range of programs in physical, material, communications, and information science. Dr. Penzias is deeply concerned about the creation and effective use of information technology in our society and is uniquely qualified to address the many aspects of this timely topic.

The second General Session, "Expanding Information Access: Global Trends, Regional Implications," will feature a distinguished panel of experts, who will explore the topic while concentrating on their own areas of expertise. Susan Shattuck Benson, senior specialist on development of libraries, archives and mass media at the Organization of American States, will cover Latin America; developments in the Pacific Rim will be discussed by Miles M. Jackson, dean of the Graduate School of Library Studies at the University of Hawaii at Manoa; and Nasser Sharify, dean and professor of the Graduate School of Library and Information Science at Pratt Institute, will discuss developments in the Near East. An overview of these trends and issues will be provided by the panel moderator, Inez L. Sperr Brisjford, director of the Institute for International Information Programs and associate professor at Palmer School of Library and Information Science at Long Island University.

CD-ROM Workshop

Does CD-ROM (Compact Disk-Read Only Memory) have a place in your library?

On Tuesday, June 9, eight SLA divisions have planned an all-day CD-ROM Workshop titled "What Is CD-ROM and Why Should We Care?" This *free* workshop will cover such topics as downloading, telecommunications, data file ownership, hardware/software requirements, as well as the latest CD trends.

Schedule of Events

The 1987 Annual Conference will feature over 100 exciting and educational programs. These events are the result of many months of planning by the Anaheim Conference Program Committee, SLA divisions, and several other committees. A wide range of topics will be covered, and the hardest decision you might have to make is deciding which sessions to attend. These sessions are open to all conference registrants at no additional cost. A sampling of program titles follows:

Adjusting to Worsening Economic Conditions
Handling Sensitive Reference Questions
After the Show is Over—What Broadcast Libraries Do with the Finished Product
Innovations in Small Libraries
The Special Library in the Year 2010
International Exchange on State-of-the-Art News Librarianship
Geographic Information Management Systems
End-User Management—The Impact on the Information Center
Standards Roundtable
Automating Visual Collections: Low Cost Solutions
Getting Online: What to Expect When Putting Your Library Online
The Computer—Today and Tomorrow
The Book Arts in Los Angeles
International Drug Information—Vendor Update
Map Conservation Workshop
Petroleum Prices and National Security
Integrated Services Digital Network
Publicity, Promotion, and P.R.—Pro-Active Strategies
World Trade and the International Monetary System
International Defense Information Conference '87
Astronomy Workshop
Impact of Changing Technologies—Visible Effects on Library Education and Careers in Special Libraries
Gossamer Condor to Flying Pterodactyl
Copyright and Cash
Newsletter Publishing: What's It All About?
Creating a Library Overseas and Acquiring Foreign Materials at Home
Environmental Health Issues in the Workplace
Government Update
New Beginnings
Practical Tips for Managing the Special Library
Great Promotion Ideas: Getting the Message Across
Role of Special Librarianship in the Context of the Library and Information Science Profession: A Content Analysis
Computer Science Workshop
The One Professional Library: Issues and Problems
Forecasting Economic Trends
SLA and the Accreditation Process
Legislative Update
Information Resources in International Business with Focus on the Petroleum Industry
Managing Technology in the Small Library
What Do You Expect from the Library?
Parallel Paths: The Consultant and the Staff Librarian
Non-Bibliographic Databases in the Sciences
Alcohol—The Number One Drug Problem
Views of the West: Curators Choice
Leadership—A Profile in Advocacy
Reference Material Update
Assertiveness=U-CYA; Uncover Your Assets
Global Marketing—Myth or Reality
Liability Insurance: Issues and Sources
Haven't I Done This Before—A Second Look at Library Software Systems
Municipal Reference Library Service
Innovative Solutions to Making Do With Less
News Libraries: Increasing Our Influence
Should SLA Emphasize Standards for Special Libraries or for Library and Information Science Materials?
Meeting the Hazardous Waste Management Information Needs of Small Businesses in Southern California
SHRP Indeed! and Our French Connection
Discussion of Global Climate Warming
Trends in California Food and Wine
South Coast Metro
Vendor Update
Issues in Consulting: Developing a Business Plan
Commercialization of Women's Issues
CAS Roundtable
Indexer's Meeting
Automating Visual Collections: High Technology
Problems and Solutions for VU/Text Users
Problems and Solutions for BASIS Users

Issues in Consulting: Developing the Financial Plan
International Securities Pricing
Toxicological Information Source Update
Computer Downloading and Optical Disk Update
Cartography and the American Geographical Society
Interpreting Education Issues for Education Librarians
The Value of the Information Professional
Book and Author Luncheon with Sherley Anne Williams
Role of Translations in Management of Foreign Technical Information
Broadening the Base of Information Users
Three Databases for Global Statistics and Information
How Online System Users Can Lobby for Change
Patent Trend Analysis: Outsmarting Your Competition
The Pacific Rim in the Year 2000
Collecting Regional Planning Records
Public Utilities Online Databases
Photo Collections: Southern California Specials
Power and Politics in Your Organization
Mathematics Workshop
Global Cooperation in Copyright
The Telecommunications Library Collection
Marketing Transportation in Southern California—Who Needs It?
Conference Wrap-up Session
Microcomputers in Map Collections
A Further Look at Biotechnology: Business, Information and Ethical Issues
Workstations for Accessing Information
From Individual Potential to Team Strength
Analyzing Foreign Financial Statements

SLA Fundraiser

A trip to Anaheim would not be complete without a visit to Disneyland. Tickets for Disneyland will be available through SLA at a discounted rate. The cost of the tickets will include a donation toward the SLA Building Reserve Fund.

The conference meeting/exhibit schedule has been planned to allow free time on Sunday evening for those attendees who wish to go to Disneyland on their own. However, the one-day tickets to Disneyland can be used any day from Saturday, June 6, through Friday, June 12.

Visit the Exhibits

Keeping current in your rapidly changing profession poses a challenge to all information specialists. The SLA Exhibit Hall provides the perfect opportunity for you to stay on top of the most recent developments in the information marketplace while viewing the services and products of more than 200 exhibiting companies. Knowledgeable booth personnel will be on hand to provide demonstrations of featured equipment and to answer questions you may have regarding their products or services. SLA's 1987 Exhibit Hall will be conveniently located in the Anaheim Convention Center.

Special Exhibit Hall Events

Sunday, June 7	Exhibit Hall Reception
3:00 p.m.–5:00 p.m.	Free drinks for all attendees.
Tuesday, June 9	Dessert in the Exhibit Hall
1:30 p.m.–2:30 p.m.	Complimentary dessert for all attendees.

Support These Exhibiting Companies: They Help Support SLA

Academic Press
AG Access
Alan Armstrong & Associates, Ltd.
All-Steel Canada, Ltd.
American Chemical Society
American Institute of Aeronautics and Astronautics
American Institute of Physics
American Library Association Publishing Services
American Management Association
American Mathematical Society
American National Standards Institute
American Society for Metals
American Society of Civil Engineers
American Society of Mechanical Engineers
Andrew Wilson/PPI
Association of College and Research Libraries
Baker and Taylor
Ballen Booksellers International, Inc.

Bank Marketing Association
Bechtel Information Services
Bernan-Unipub
Beverly Books, Inc.
Biosciences Information Service
Book Clearing House
Book Services International
R.R. Bowker Co.
Brodart Co.
BRS Information Technologies
The Bureau of National Affairs, Inc.
Burrelle's
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Cab International
Cambridge Scientific Abstracts
Cambridge University Press
Center for Association Publications, Inc.
Center for International Financial Analysis and Research, Inc.
Charles E. Simon and Co.
CLASS
CLSI, Inc.
Combined Consultants Exhibit
Commerce Clearing House, Inc.
Comstow Information Services/ Bibliotech
Congressional Information Service, Inc.
Corporate Technology Information Services
Coutts/Menzies/Bennetts
Creative Manufacturing Corp.
Cuadra Associates, Inc.
Data Analysis Group
Data Composition, Inc.
Data Trek, Inc.
Databooks
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Demco, Inc.
Derwent, Inc.
Dialog Information Services, Inc.
Disclosure Information Group
Dow Jones and Company, Inc.
Drug Information Fulltext/IPA
Dun's Marketing Services
Dun's Marketing Services—Online
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Encyclopaedia Britannica, Inc.
Engineering Information, Inc.
Euromoney Publications PLC
The Faxon Co.
Federal Document Retrieval, Inc.
Federal Publications, Inc.
Follett Software Co.
Fuji Photo Film U.S.A.
G Two Marketing
Gale Research Co.
Gaylord Brothers, Inc.
General Research Corp.
Georgetown University Medical Center Library
R.P. Gillotte Co.
Gordon and Breach Science Publishers
Gralan Distributors, Inc.
Grolier Educational Corp.
Grolier Electronic Publishing, Inc.
Gulf Publishing Co.
G. K. Hall & Co.
Harwood Academic Publishers
Horizon Information Services
IEEE Computer Society Press
IEEE/INSPEC
IMS International
Info Globe
Information Access Co.
Information Dimensions, Inc.
Information Handling Services
Information on Demand
Information Store, Inc.
Inforonics, Inc.
Inmagic, Inc.
Innovative Interfaces, Inc.
Inspec
Institute for Scientific Information
Interavia Publishing Group
Interdok Corp.
International Monetary Fund
Jane's Publishing, Inc.
Knowledge Industry Publications, Inc.
Learned Information, Inc.
Lexington Books
Library Automation Products, Inc.
Library Bureau, Inc.
Library Wholesale Services
Majors Scientific Books
Marcive, Inc.
Market Data Retrieval
Martinus Nijhoff International
McGraw-Hill Book Co.
McGraw-Hill Publications Co.
McGregor Subscription Service, Inc.
Mead Data Central
Meckler Publishing
Moody's Investors
National Agricultural Library, USDA
National Central Library—China
National Register Publishing Co.
National Technical Information Service
Nedbook International BV
Nerac, Inc.
Newport Associates, Inc.
Newsbank, Inc.
Newsnet, Inc.
Nichols Publishing Co.
Nils Publishing Co.
Notis
Nova University
OCLC
Orbit Search Service
Organization for Economic Cooperation and Development
Oryx Press
Oxbridge Communications
Paper Chase
Pergamon Infoline, Inc.
Pergamon Press, Inc.
Pioneer Hi-Bred International
Plenum Publishing Corp.
Predicasts
Prentice-Hall Press
Princeton Microfilm Corp.
Professional's Library
Public Affairs Information Service (PAIS)
The Publisher's Book Exhibit, Inc.
The Ralph McElroy Translation Co.
Read-More Publications, Inc.
Regulatory Information Service (RIS)
Research Books, Inc.
Research Information Services
Research Publications
Russ Bassett
Sadtler Research Laboratories
Savage Information Services
Scholium International, Inc.
Sheshunoff and Co.
Silverplatter Information, Inc.
Social Issues Resources Series, Inc. (SIRS)
Society of Automotive Engineers, Inc. (SAE)
Sociological Abstracts, Inc.
Spacesaver Corp.
Specialized Book Service, Inc.
Springer-Verlag New York Publishers, Inc.
Standard and Poor's Corp.
STN International
Stockton Press
Swets North America
Sydney Dataproducts, Inc.
Taylor and Francis/IPS
Thomas Register Online
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United Nations Publications
U.S. Book Company
U.S. Bureau of the Census
U.S. Geological Survey
U.S. Library of Congress, Cataloging Distribution Service
U.S. Patent and Trademark Office—Patent Depository Library Program
USBE, Inc.
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Utlas International U.S., Inc.
Van Nostrand Reinhold Co., Inc.
VU/Text Information Services
Wadsworth, Inc.
Washington Document Service
West Publishing Co.
Western Union
John Wiley and Sons, Inc.
H.W. Wilson Co.
Worden Co.
The World Bank
World Book Encyclopedia

Continuing Education

The Professional Development Section will offer a diverse program of courses designed to advance the knowledge and skills of both new and experienced information professionals. Participants will earn 0.6 Continuing Education Units

(CEUs) and a certificate upon completion of each course. CE courses will be conducted on Saturday, June 6, and Sunday, June 7, from 9:00 a.m. to 4:00 p.m.

Several professional development activities will be offered for more experienced information professionals or those with advanced knowledge in the field of instruction. These opportunities include "Systems Analysis in a Managerial Environment," "Advanced Applications of Library Microcomputers," "Going It Alone: Managing the One-Person Library, Part 2," as well as two Middle Management Institute offerings.

Ten new courses will be offered this year: "New Technology and Its Impact on You," "Database Construction Issues," "Systems Analysis in a Managerial Environment," "Going It Alone: Managing the One-Person Library," "Impact Your Organization: Creative Management and Effective Communications," "Evaluating the Corporate Library," "Legal Research for the Non-Law Librarian," "Thesaurus Construction," "Budgets and Libraries," and "Resume Writing and Interviewing Techniques."

The complete listing of courses is as follows:

Management

Corporate Library Excellence
Evaluating the Company Library
Impact Your Organization: Creative Management and Effective Communications
Going It Alone: Managing the One-Person Library (Part I and Part II*)
Organizational Management for the Information Professional
Space Planning and Evaluation for Libraries and Business Information Centers
*Systems Analysis in a Managerial Environment
Time Management in the Small Library

Technology

*Advanced Applications of Library Microcomputers
Introduction to Microcomputers for Special Libraries
New Technology and Its Impact On You!

Budgeting and Finance

Budgets and Libraries
Making Money: Fees for Information Service

Personal Development

Resume Writing and Interviewing Techniques

Information Management

Database Construction Issues
Legal Research for the Non-Law Librarian
Practical Research for the Special Librarian
Thesaurus Construction

** For information professionals with advanced subject knowledge in the field of the course.*

Middle Management Institute

The Middle Management Institute (MMI) is the second phase of SLA's Professional Development Program. The MMI consists of 75 hours of instruction divided into five units:

- Management Skills
- Analytical Tools
- Human Resources
- Marketing and Public Relations
- Technology and Applications

Each unit will include 15 hours of interactive instruction spread out over two-and-a-half days. Participants will earn 1.5 CEUs for each completed MMI unit. An MMI Certificate will be awarded to participants who complete all five units within an approximate 24-month period. In addition to the units offered on June 5–7 at the Annual Conference, SLA has scheduled Middle Management units in various locations throughout the United States over the next several years.

The "Management Skills" unit will explore the role of the information center within the organizational structure, while sharpening participants' skills in meeting

the challenges of management. Problem-solving, decision-making, and time-management techniques will be presented, and various management styles will be evaluated.

The "Marketing and Public Relations" unit will emphasize the development of strategies to promote the services provided by the special library and information professional. Participants will be introduced to the key components in a successful marketing strategy and, through the program, will develop the skills to design and convey an effective public relations message.

For information on any of the Professional Development Programs presented by SLA, please contact Kathy L. Warye, Director, Professional Development, at (202) 234-4700.

Management Cinema

SLA management films will again be featured at the Annual Conference. Viewers will have the opportunity to learn about sophisticated and timely management topics through a well-designed and interesting format. Titles, descriptions, and times will be listed in the Final Conference Program.

For information please contact Kathy Warye.

Contributed Papers

Contributed Papers Sessions will be held on Monday and Tuesday afternoons during the Anaheim Conference.

Monday's session is titled "Global Information Access and Multinational Corporations," and the titles and authors of the papers to be presented are as follows:

"The Role of International Inter-Governmental Organizations in International Information Transfer and Policy"
Speaker: Robert Williams, associate professor, University of South Carolina, College of Library and Information Science

"A Global Information System to Identify Research in Progress"
Speaker: Alice Lefler Primack, associate librarian, University of Florida

"Information Network for Numeric Databases of Materials Properties"
Speaker: Ferne C. Allan, technical information specialist, Sandia National Laboratories

"Serving the Information Needs of a Multinational Corporation"
Speaker: JoAnn L. Gill, information analyst, Digital Equipment Corporation

"How to Shrink the Informational World of a Multinational Organization"
Speaker: Lois Weinstein, manager, technical information services, General Foods Corporation

"Classified Documents in the Corporate Library"
Speaker: Patricia M. Shores, librarian, General Electric Company, Aerospace Control Systems Department

"Bank Letters as a Source of Business Information"
Speaker: Nancy Jane Myers, senior reference librarian, SRI International

"Packet Switching Networks: Worldwide Access to Corporate Datafiles"
Speaker: Kurt O. Baumgartner, senior associate information scientist, International Minerals & Chemical Corporation

"Information Access Throughout the World" is the title of Tuesday's session. The topics to be covered and the authors of the papers are as follows:

"Japan in the Age of Information"
Speaker: Jimmy Dickerson, chemistry librarian, University of North Carolina

"Information Flows Between the United States and Japan"
Speaker: Deborah Uchida, corporate librarian, Hawaiian Electric Company

"Information Access in Niger: the West African Experience"
Speaker: Charlene M. Baldwin, science

reference librarian, University of Arizona

"Access to Russian Technical Information Sources"
Speaker: Robert Carande, engineering librarian, General Dynamics, Convair Division

"Agricultural and Forest Resources of Latin America: Information Networks"
Speaker: Frederick Sepp, senior assistant librarian, life sciences, Pennsylvania State University

"Agricultural Documentation in the Middle East: a North Yemen Case Study"
Speaker: Robert G. Varady, assistant research scientist, University of Arizona, Office of Arid Lands Studies

"Special Libraries in West Germany as Part of the National Information and Documentation System"
Speaker: Wolfram Neubauer, manager, Central Library, Boehringer Ingelheim

California, Here We Come

Sunny Anaheim was chosen as the site of SLA's 78th Conference for a variety of reasons—sufficient meeting/exhibit space, abundant, attractive, affordable hotel rooms, easy access to major transportation, and last, but not least, its location in exciting California. The last SLA Conference on the West Coast was in San Francisco in 1971. The many attractions nearby this year's meeting site will entice attendees into lingering for a vacation after the conference is over.

SLA has scheduled several conference-wide events that will enable participants to enjoy the unique charm of this region.

"Heart of Orange County"

This Saturday evening bus tour will begin with a ride through the streets of Anaheim with a knowledgeable guide pointing out the city's many attractions including Anaheim Stadium, Disneyland, and the Crystal Cathedral. The tour then travels westward through Orange County to Laguna Beach on the Pacific Ocean. The ride continues along the coast allowing you to view splashing ocean waves and white sandy beaches while passing through Newport Beach and Balboa Island. Time will be scheduled for a stop or two along the way at points of scenic interest. Light refreshments will be served during the trip.

"Newport Getaway"

View the coastal splendor on your way to Newport Beach where a one hour cruise of Newport Harbor has been scheduled on board the "Pavilion Queen." While relaxing and breathing the salty ocean air, you will view the homes of millionaries along the shore, and a wide range of pleasure boats in the bay, ranging from rubber rafts to ocean-going yachts. After the cruise is a short trip to Lido Marina Village, a neighborhood market place that combines European flavor with its Newport personality. Here you will have time to stroll along the cobblestone walkways and browse through an assortment of 75 international boutiques. This event is scheduled for Thursday, June 11.

"Hollywood Happening at Universal Studios"

Upon arrival at Universal Studios on Thursday morning, you will board a tram for a privately guided tour through Univeral's famous backlot. This area is made up of 640 outdoor sets that were specially created for many famous movies and TV shows including "The Sting," "Psycho," and "Simon and Simon." The magic of special effects will simulate for you the experience of an Alpine avalanche, an attack by "Jaws," and an encounter with King Kong. The Universal Entertainment Center is the next stop where you will be on your own for lunch and to enjoy many other attractions. These include the Screen Test Comedy Theater, the A-Team Live Action Show, and a Western Stunt Show, or you can just browse through the exhibits and movie museum.

Hotels

The co-headquarters hotels for the Anaheim Conference are the Anaheim Hilton and Anaheim Marriott. The Inn at the Park is also holding a block of rooms for SLA conference attendees. All three hotels are conveniently located near each other and the Anaheim Convention Center. A full listing of room rates and the housing reservation form will be printed in the Preliminary Conference Program.

Transportation

Los Angeles International Airport (LAX) is 36 miles from Anaheim and is the closest major airport. An airport bus runs on a frequent schedule from LAX to the major hotels in Anaheim and SLA has negotiated group rates for the bus—be sure to clip out your bus coupon from the Preliminary Conference Program. John Wayne County Airport is located 14 miles from Anaheim and is served by several airlines. Taxis, limos and busses are available from both airports. SLA has appointed National Car Rental as our designated car rental company for the 1987 Anaheim Conference. Full details will be provided in the Preliminary Conference Program.

Registration

Registration will take place in the Anaheim Convention Center. Advance registration for the Anaheim Conference is strongly encouraged to avoid long, time-consuming lines and to save you money. All SLA members will be mailed a copy of the Preliminary Conference Program in early March.

If you are not an SLA member and wish to receive a copy of the Preliminary Conference Program, or if you have any questions about the conference, please contact the Manager, Conference and Exhibits, Special Libraries Association, 1700 Eighteenth Street, N.W., Washington, DC 20009; (202) 234-4700.

"1987—The Year of the Reader" A Do-It-Yourself Concept

John Y. Cole

I AM pleased to invite special librarians to mark 1987 as the Year of the Reader, through events and projects that celebrate reading, readers, and libraries. "1987—The Year of the Reader" is a simple "do-it-yourself" theme that encourages reading and recognizes its crucial place in a democratic culture. It also calls attention to the vital role in our society of libraries, schools, information centers, and other organizations that disseminate the printed word.

"1987—The Year of the Reader" is the 10th anniversary theme of the Center for the Book in the Library of Congress, which was established by Librarian of Congress Daniel J. Boorstin to stimulate public interest in books, reading, and the printed word. In response to a request from Dr. Boorstin, Congress and President Reagan have designated 1987 as the Year of the Reader. The official statements, Public Law 99-494 and Presidential Proclamation 5584, give librarians and others who care about books and reading an opportunity that we should not ignore. Both emphasize the need to "restore reading to a place of preeminence in our personal lives and in the life of our Nation." President Reagan's proclamation, issued December 3, 1986, makes two especially important points: 1) the ability to read and write effectively is essential "to success and accomplishment in every field of endeavor," and 2) those without these abilities "lack a vital employment skill in our increasingly information-rich society."

Because special libraries are imbedded within every kind of imaginable organization, they can help us reach new audiences with the Year of the Reader message. Why not ask your organization to use the theme in an existing (or a new) public relations effort? In the name of the Year of the Reader, for example, your organization might provide publicity for a local literacy effort. It might help support a public library. It might even support a project developed by its own library. For example, the chair of the board and the corporate directors would be delighted, I'll wager, to talk about the books that influenced them or to describe their favorite reading, be it books, magazines, newspapers, or corporate annual reports. Such a program would fit nicely into the Year of the Reader and benefit your library as well.

Many Year of the Reader projects are underway at national, state, and local levels. CBS Television, the Arts & Entertainment Network, and Pizza Hut, Inc., for example, are participating

through projects with the Center for the Book. The *San Francisco Chronicle* sponsored the creation of a Year of the Reader office in San Francisco to promote the concept and establish a model program that other communities could emulate. Projects include read-aloud corners in Safeway stores and a reader's day at an Oakland A's ball game. Through the Illinois Center for the Book, an affiliate of the Center for the Book in the Library of Congress, the *Chicago Tribune* is sponsoring a statewide Year of the Reader calendar and Year of the Reader banners on Michigan Avenue. The other statewide affiliates of the Library of Congress' Center for the Book (Florida, Michigan, Minnesota, Oklahoma, Oregon, and Wisconsin) have campaigns fitted to their own needs and capabilities.

As talk show host Roy Fox of radio station WMCA in New York City stated, there is a final, compelling reason why all librarians should mark the Year of the Reader: "It's the perfect excuse to sit down and read."

John Y. Cole is the executive director of the Center for the Book at the Library of Congress in Washington, DC.

NEW BOOKS FROM SLA

Guide to Individual Development: An Annotated Bibliography, compiled by Valerie Noble. 1986. 24 pp. ISBN 0-87111-324-5. $6.00.

This revised edition of the popular 1980 bibliography is a convenient one-stop source of books, audio cassettes, and videos covering the literature of individual development. Topics include time management, stress, public speaking and presentations, career and life planning, computers and microcomputers, and productivity. An invaluable sourcebook for anyone interested in making better use of time.

Faking It: An International Bibliography of Art and Literary Forgeries, 1949–1986, compiled by James Koobatian. 1987. Approx. 240 pp. ISBN 0-87111-320-1. $25.00.

An almost exhaustive coverage of forgeries in the arts and literature, legal aspects of forgeries, and extensive lists of exhibitions and exhibition catalogs of fakes and forgeries, Mr. Koobatian's bibliography is both international and comprehensive in scope. It is the only source to a vital area of scholarship in the arts. Contents include 50 sections of items of special interest, ranging from the obvious category of paintings and sculpture to the more unusual ones of netsuke and papier mâché.

Government Information: An Endangered Resource of the Electronic Age. 1986. Approx. 300 pp. ISBN 0-87111-322-8. $21.75.

This volume is based on SLA's first annual State-of-the-Art Institute, held in Washington in November 1986. It provides complete texts of 15 presentations, as well as a foreword by former ABC News anchor Steve Bell. Participants in the Institute represented a broad spectrum of the library/information community, coming from corporate, government, public, and academic libraries. Also included is an introduction by SLA's Executive Director, Dr. David R. Bender.

TO ORDER: Contact Special Libraries Association, Order Department, 1700 Eighteenth Street, NW, Washington, DC 20009, or call (202) 234-4700.

Reviews

Academic Librarians and Cataloging Networks: Visibility, Quality Control, and Professional Status, by Ruth Hafter. Westport: Greenwood Press, 1986. 153 pp. ISBN 0-313-24821-4. $29.95.

In this book, Ruth Hafter sets out to examine the impact of cataloging networks on the self-perception of professional catalogers. To accomplish this, she has interviewed 68 professional catalogers representing six academic libraries and three cataloging networks: OCLC, RLG/RLIN, and WLN.

The catalogers interviewed expressed the feeling that this form of automated cataloging has redirected departmental workflow to the terminals and to the nonprofessionals who edit the bulk of machine-accessible records. As such, the professionals are assigned the esoteric leftovers (dregs) and find they no longer command either subject expertise, nor is their cataloging expertise particularly valued by library administrators. These administrators, it is felt, stress quantity and speed over quality. Network administrators, however, view quality as a marketable commodity, and an uneasy alliance has been forged with recognized "master catalogers" to set quality control standards for the networks. Nonetheless, the feeling remains that professional status which is largely based on specialized and increasingly unappreciated knowledge has been eroded.

Central to this is the issue of quality. Quality is interpreted to be the maintenance of consistency with established or past practice. This practice is either internal (i.e., institution-specific) or external (i.e., AACR2 or LC) in nature. Altering or deviating from such practice undermines the professional cataloger's traditional claims to professional status. Hafter also touches on a more fundamental issue: that of the purpose of the institutional catalog. Is it essentially a bibliographic tool and an element in the scheme of Universal Bibliographic Control, or is it a finding tool designed to reflect a library's holdings to the average user? Unfortunately, Hafter does not dwell on the topic long enough to suggest an answer.

Her book has been based on the experiences of professionals within three automated cataloging consortia. However, this is reflective of only one type of cataloging experience. A significant number of academic libraries do not belong to a consortium, and the trend appears to favor contracting services from database vendors or developing integrated systems that download other databases in part or in whole. The issue of professional status within such institutions has taken on other aspects such as "distributed cataloging" at Pennsylvania State University. (Striedieck, S. "And the Walls Came Tumblin' Down: Distributed Cataloguing and the Public/Technical Services Relationship—the Technical Services Perspective," Proceedings of the 47th ASIS Annual Meeting. White Plains, NY.: Knowledge Industry, 1984.)

Nevertheless, the responsibility for standards for quality control is the issue behind professional status. It has polarized library administrators and professional catalogers. On one hand is the hard-nosed cost-benefit approach of the administrator and on the other hand is the righteous dedication of the cataloger. Hafter has recognized the need to reassess traditional claims to status based on knowledge of consistent application of rules and subject specialization. Although they are valuable, something more is demanded to deal competently with new and inevitable technology as well as priorities.

Hafter reflects on current professional status and reviews the literature associated with the topic. Although the scope of the study is too narrow to describe professional academic catalogers in North America, *Academic Librarians and Cataloging Networks* is an interesting and worthwhile book.

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The Best Book of: dBASE II/III, by Ken Knecht. Indianapolis, IN: Howard W. Sams & Co., Inc., 1985. 249 pp. LC 84-52376. ISBN 0-672-22349-X. $19.95 pbk.

The dBASE II and dBASE III are powerful, popular database management software from Ashton-Tate. According to the company, there are currently more than 550,000 purchasers of two packages. The newest version, dBASE III PLUS, was introduced early in 1986. dBASE II and III are relational database management programs whose command language includes some of the aspects of a general purpose structured programming language like BASIC with additional commands

for data file handling. dBASE III has, in addition, the "dBASE III Assistant," which allows the user to run the software through menus, rather than learning the command language. A wide range of library applications has been written with the dBASE family.

The popularity of dBASE II is surprising in light of the inadequate user manual that accompanies the program. Fortunately, the dBASE III manual is a vast improvement over its predecessor. The need for a better explanation of dBASE II and the software's popularity have been a boon to writers and publishers of computer books. Numerous texts have been written to fill the gap. Most of them supply ample detail on dBASE II and III capabilities and provide extensive examples of applications. *The Best Book of: dBASE II/III* is one in a series of books from Howard W. Sams & Co., Inc., on popular software; it is designed to fill this gap.

Ken Knecht, computer consultant, software developer, and writer, never specifically identifies his intended audience in the text; however, the book's back cover carries the statement, "This book assumes you already know how a database performs and shows you the tricks that will make dBASE II and dBASE III respond to your specific needs." In practice, the book is primarily for the new dBASE II user who has become frustrated with Ashton-Tate's manual and who wants to know how to use the software for specific applications. In addition, it provides a comparison of dBASE II with dBASE III for those who need more information before deciding to purchase the latter.

The Best Book of: dBASE II/III is organized into an introduction, 14 chapters, and an index. The brief introduction clearly and succinctly defines many key terms, such as data, database, and record; it also outlines the content of the book. Although the author describes dBASE II and dBASE III as "relational" database programs, he does not explain very well what this means. Following the introduction, the next eight chapters and Chapter 12 cover dBASE II commands in depth, using an inventory of zoo animals as the specific example running throughout the discussion. Chapters 9 and 10 cover *Quickcode* by Fox and Geller. This is a program generator that will write dBASE II command language programs automatically after being supplied with a minimum of information. Chapter 11 covers *dGraph,* another program from Fox and Geller, that can draw pie charts and line and bar graphs using data from dBASE II files. Since Ashton-Tate introduced dBASE III while the author was writing the book, Chapters 13 and 14 were added to introduce it briefly. (They were also possibly added in order to appeal to a wider market of potential buyers of the book.) Knecht describes dBASE III as "a special version of dBASE II for 16-bit computers." I am sure that Ashton-Tate considers dBASE III to be much more than this. Chapter 13 describes changes to existing dBASE II commands and features, while Chapter 14 discusses what is new. Finally, an adequate index is provided, primarily to dBASE II commands discussed in the text. Commands are printed in capital letters in the index.

The book contains some typographical errors, omissions, and several garbled sentences that a thorough reading by a good editor should have caught. In addition, the author makes a few false statements. For instance, Knecht advises the reader that one must delete a report format file "if you want to change the format of the report while still using the same report name." This is not necessary; the format can be changed by using the "modify" command if the file extension "frm" is included with the filename in the command statement.

A very useful feature of *The Best Book of: dBASE II/III* is the fully annotated sample program of a menu-driven inventory system in Chapter 8. This sample program clearly demonstrates the power of dBASE II command files for those willing to learn programming. Unfortunately, the annotated program does not include any examples of the menu screens generated or the printed reports produced by the command files. The discussions of *Quickcode* and *dGraph* are also valuable, providing basic information to the reader who is considering the purchase of either of these two supplementary programs. As to "tricks," Knecht does provide a few helpful ones, such as explaining how one can go directly from the operating system to a dBASE II command file with one command statement.

Overall, the best features of *The Best Book of: dBASE II/III* are its clear explanation of each of the dBASE II commands and the numerous examples explaining how the commands can be used. I would recommend this book to the novice user of dBASE II who wants to master the command language and begin programming serious, but simple, applications. Purchasers of dBASE III who are interested in the programming of specific applications should seek one of the many other texts available because this book provides only a brief introduction to dBASE III. *Advanced dBASE III: Programming & Techniques,* by Miriam Liskin

(McGraw-Hill, 1986), is an excellent example of what is available.

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Conflicts in Reference Services, edited by Bill Katz and Ruth A. Fraley. New York: The Haworth Press, 1986. 236 pp. ISBN 0-86656-385-7. $29.95.

The theme of this hardcover retread of *The Reference Librarian,* Spring/Summer 1985, is conflict in reference services. Conflict is defined as the tensions arising from the institutional, patron, and personal pressures that interface at the reference service point. These pressures are the normal conflicts of interest or attitude that may be expected when different institutional units or individuals with different objectives meet. As Ruth Fraley points out in the Introduction, "some conflict is inherent in most aspects of library work and is especially evident in public services." Such tensions can be positive and productive, giving impetus to thought and self-examination and leading to new solutions and the creative evolution of librarianship.

Five areas of conflict in reference service are examined: conflicts within the library, fees and services, bibliographic instruction, the role of the professional, and resources. Twenty-three papers are included under the five areas.

The first and longest section, "In the Library," includes papers on reference and different user groups; catalogers, the catalog, and reference work; interlibrary loan; the library's image; nonaffiliated users; philosophy vs. reality; and the training of reference librarians.

In "Fees and Services," Margaret F. Steig of the University of Alabama library school gives an excellent historical perspective on fee vs. free. Dean Brugess, Director of the Portsmouth Virginia Public Library, discusses fee vs. free in the context of database access. The context is the public library, but the philosophies are applicable to other types of libraries as well.

"Instruction" covers various aspects of working with faculty and administrative support for bibliographic instruction. "The Role of the Professional" includes papers on nonprofessionals on the reference desk, library education and the workplace, and structural conflict and role ambiguity in academic reference librarians.

The last section, "Resources," is a mixed bag of papers with a tenuous connection to the theme. It includes papers on consumer health information service, academic library service for physically disabled students and faculty, problems in statistical reference, and a description of the services of the NASA Industrial Applications Centers.

The papers are thoughtful and well-written. A few are based on original research as well as on the literature. Age is creeping up on them, however. The papers were presumably published in 1985, and some were written in 1983. There have been new developments that advance thinking in some of the areas, e.g., bibliographic instruction and fee-based services. With a few exceptions, the authors are academic librarians, writing about topics of concern in academic libraries. The book, therefore, will be of most interest to librarians in college and university libraries.

Elin B. Christianson
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Data Manipulation in Sci-Tech Libraries, edited by Ellis Mount. New York: The Haworth Press, 1986. 131 pp. ISBN 0-86656-441-1. $22.95.

If I had purchased this book on the basis of its title, I would feel that I had been manipulated. Only about one third of *Data Manipulation in Sci-Tech Libraries* is on library automation, downloading, and list applications of office automation equipment. Most of the book has nothing to do with data manipulation, but is, rather, comprised of a special paper on medical library service in the Western Pacific, a bibliography on weapon systems, numerous one-paragraph book reviews, various notes, and news.

Naomi Broering's article on the computerized library at Georgetown University Medical Center is well-written and informative, but most of it duplicates what has already appeared in her articles in the July 1983 and April 1985 issues of the *Medical Library Association Bulletin.* Gary Wiggins describes how he downloads from *Chemical Abstracts* to make a list of faculty and staff publications, and Maryde King describes the history of online searching and downloading in a corporate laboratory setting. In the final article related to

data manipulation, Lawrence Mondshein describes the use of Visual Memory software and office automation equipment for an animal/in vitro database. Special librarians who attend conferences and read professional journals will find very little that is new in the above-mentioned articles.

In her special paper, Estelle Brodman describes the work of the World Health Organization (WHO) in improving the availability of biomedical information in the Western Pacific. Some of the most important literature for solving local medical problems in developing countries is available only in mimeographed form and is not indexed. Fortunately, the problem of fugitive literature is starting to be addressed by the WHO. Brodman speculates that some developing nations may leapfrog to microformat or computer storage collections without developing print collections. Anyone working on medical problems in developing countries should concentrate on appropriate technology and would do well to remember Arnold Pacey's comment in *The Culture of Technology* that properly constructed and maintained water and sewerage systems and better nutrition have made a bigger contribution to health in the modern world than has medicine.

One of the most useful contributions in the book is Doris Ottaviano's pathfinder to U.S. weapon systems. This selective bibliography emphasizes those weapon systems in production and deployment with a bias towards naval weapons. Government policy, arms control, and disarmament are not covered. In the final paper, Cynthia Steinke provides survey results of the Special Libraries Association's Science and Technology Division members as to what are the most useful scientific and technical reference books and the desired new reference books.

This book is a reproduction of volume 5, number 4, of the journal *Science & Technology Libraries* and is not recommended for purchase. There is no unifying theme for the book. The journal issue more appropriately covers topics of so much diversity.

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Education for Professional Librarians, edited by Herbert S. White. White Plains, NY: Knowledge Industry Publications, Inc., 1986. 287 pp. ISBN 0-86729-197-4; 0-86729-196-6. $36.50; $28.50 pbk.

The name Dean White as author or editor is not new to the field of librarianship. In this collection of pieces on the realities of education for librarians, it is no surprise and is, in fact, rather comforting, to be able to cuddle up with White's ideas of past, present, and future (mostly the very near future) through a group of 13 professionals (including White) who discourse on needed and available educational opportunities for library professionals. This is covered quite well and openly in Part I, "Practitioner expectations and needs." Part I includes both positive and negative aspects of the various opinions. Part II considers "Educational preparation programs," which review graduate and undergraduate education (the latter an eye-opener for this reviewer), plus continuing education programs and activities á la SLA. A chapter on the "view of the student," though interesting and probably an accurate overview, is somewhat misnamed. Opinions by educators and other professionals are given, but virtually no input from students or recent graduates is noted.

The bulk of special librarianship is considered in a chapter on "Corporate libraries." The specific and pragmatic views of managers in business and industry show a bit of a rift or misunderstanding between them and educators. The dangers of this must be recognized by both sides and a team effort must be introduced. There are lengthy chapters on medical libraries, federal government libraries and information centers, and large public and university libraries where many special librarians practice. But where do the law libraries, for example, fit in? They are specialized, but there is not a word about them in this book. There is a truly informative chapter on the information industry, providing background on a growing area of librarianship.

White's summary and conclusions are indeed cogent, as he is a forceful promoter of librarian education. He willingly admits that "any attempt to define optimal—or even minimal—preparation for entry into this profession is highly premature, no matter how many times federal agencies try to catch this bit of lightning in bottles built of perceived competencies." White concludes, in part, that "This book is only a beginning. . . ." But it is an excellent beginning and should be required reading not only for educators and practitioners, but also for students considering the library field as a vocation, students already

immersed, managers considering eventually hiring these graduates, and lay persons interested in finding out how professional librarians are educated and trained. The price of the volume may be a deterrent, but ought not to be for serious seekers of knowledge.

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Electronic Illusions: A Skeptic's View of Our High-Tech Future by Ian Reinecke. New York: Penguin Books, 1984. 256 pp. ISBN 0-1400-7103-2. $7.95 pbk.

In this revised edition of his 1982 book, *Micro Invaders,* Australian journalist and publisher Ian Reinecke fires his guns at all the "nonsense that is talked about computers." As a book for those concerned (or outright paranoid) about the role of information technology in societal change, it has several points to recommend it. First, Reinecke does an entertaining job of describing a wide range of technologies—including microcomputers, videotex, cable TV, satellites, networks, and factory robots—as we might expect of a journalist who has covered the technological beat for several years now.

Second, Reinecke's message is a deserving one: We should be skeptical, perhaps even alarmed, about the consequences of technical development when they proceed in the absence of comprehensive policies on employment and working conditions. Indeed, Reinecke is at his most cutting when he describes the unemployment and dehumanization that has occurred in the office and factory as a result of the indiscriminate application of computers. Although written more for the Australian and English portions of the anglophone world, the book is one of few that incorporate adequate portrayals of technologies (with examples from several countries) together with reasoned criticisms of their effects.

At times, Reinecke's technical explanations are a little *too* enthusiastic and breezy, rather like those of the "techno-boosters" he villainizes. And at times he is confusing, as in his failure to clearly explain the variants of "videotex" and "teletext"; a simple table would have made their relationship much more obvious. Finally, his coverage of the *consequences* of technology are also uneven, giving the impression of serendipitous research on some topics. For example, during a computer-related newspaper strike, Reinecke spent "extended periods standing on street corners in Australia shouting at passersby . . . the best research I could ever have conducted for a book about technology." Really?

In the end, Ian Reinecke offers no solutions, only a call for more education about technology and questioning of its application. Skepticism is the best medicine, Reinecke says, for living in modern times.

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Improving Communication in the Library, by Barbara Conroy and Barbara Schindler Jones. Phoenix: Oryx Press, 1986. 195 pp. ISBN 0-89774-172-2. $25.00 pbk.

Many books that have much less to say and are less well-written come with better exterior packaging than does this slim, paperbound book. One can sympathize with the publisher's effort to trim costs but at the same time one can regret their decision. The stated purpose of this work is to help librarians understand more about organizational communication and to aid library directors in organizing and managing a system of organizational communication.

The first of the three sections defines basic concepts. It is a discussion of the purposes and processes of both internal and external communication, as well as some special concerns of library managers. Charts list several media, such as announcements, memos, meetings, and surveys, and outline their strengths and weaknesses. Guidelines are suggested for managers interested in setting up an organizational communication system, along with methods of evaluation and comparisons of management information and decision support systems.

The second section is entitled "People Working and Communicating Together." Of particular interest to librarians who serve on committees is the discussion of small group dynamics: how groups develop through stages of dependency, conflict, cohesion, and, finally, interdependence. Interviewing skills, conflict resolution, and creative thinking are some of the other topics addressed.

In the final section, on communication and change, several models are discussed and probable areas of change identified. The book concludes by presenting planning and per-

sonnel guidelines for changing times and mentions several managerial strategies for planning; dealing with resistance; and initiating, implementing, and institutionalizing change. Evaluation is stressed throughout.

This is a volume of uncommon excellence by authors who know their subject and can update their readers in a compelling manner. Scholarship is evident throughout; the notes that follow each of the eight chapters cite authoritative sources, as does the extensive bibliography. This well-written, well-organized book will be of interest to managers, librarians, and library school students.

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Information Sources in Engineering, 2nd ed., edited by L. J. Anthony. London: Butterworths, 1985. 578 pp., index. ISBN 0-408-11475-4. $75.95.

This ambitious guide to the broad engineering field is a complete revision of *The Use of Engineering Literature,* edited by K. W. Mildren (1976). English-language sources, especially British, are emphasized, though major European sources are also included. There are very few references to items published more recently than 1983. The handbook consists of three sections: an introduction to the structure of engineering literature; chapters on the major types of primary and secondary sources of general interest; and 18 bibliographic essays by subject specialists in specific fields of engineering. The index covers subjects, major indexing, abstracting and online systems, and organizations. Individual titles cited are not indexed, and the indexing of organizations is not comprehensive. The chapter on aerospace engineering has information on NACA, yet only NASA appears in the index.

The introduction to engineering information describes the information needs and retrieval methods of engineers who often prefer personal contacts to printed sources. Document delivery and bibliographic and information networks are explained, and technological advances, such as videodisks, end user online systems, and electronic journals, are briefly mentioned.

The six chapters on primary sources include reports; standards; patent specifications; journals, conferences, and theses; translations; and product information. The types of sources are defined with an explanation of their value to engineering. The chapters cover major issuing organizations and depositories, abstracting and indexing services, bibliographies and other reference tools, important publication series, journals, online services, and methods of acquiring and organizing the materials in libraries. The chapter on product information is particularly helpful for librarians who field questions from engineers searching for product data.

Secondary information sources are covered in three chapters: abstracting and indexing services, bibliographies, and reviews; online information services; and standard reference sources. The section on indexing services is somewhat out of date, however. For example, a new edition of SHE, Subject Headings for Engineering, was published in 1983, but only the 1972 edition is cited; the 1976 edition of *Science and Engineering Literature* is mentioned rather than the 1980 edition. The chapter on online information services describes advantages and disadvantages, types of databases, guides to searching, online ordering, downloading, and telecommunications systems. A table lists the major databases, print version names, host services, and refers the user to the specific subject chapters in the guide that describe each database in greater detail.

The chapters on specific subject fields include stress analysis, machines, thermodynamics, fluid mechanics, automotive engineering, aerospace engineering, marine technology, production engineering, electric power systems, electronics, computers, transport and constructional engineering, hydraulics and coastal engineering, public health engineering, offshore engineering, chemical engineering, energy technology, and nuclear power engineering. Some contributors include background information on the subject. For example, the fluid mechanics chapter would be a helpful introduction for those with no background in that area.

This resource would be of value to practicing engineers. No other source provides such comprehensive current coverage of the literature of engineering. It is recommended for librarians and information specialists in engineering and technology libraries and would also be useful in graduate bibliography courses.

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The Library Disaster Preparedness Handbook, by John Morris. Chicago: American Library Association, 1986. 175 pp. ISBN 0-8389-0438-6. $20.00 pbk.

The Los Angeles Central Library fire of April 29, 1986, is a compelling caveat for disaster planning. Fire investigators concluded that the disaster could have been avoided had an automatic sprinkler system been used.

The Library Disaster Preparedness Handbook is about protecting the library from loss. Morris argues for librarians to make loss-control plans from the perspective of an ounce of prevention being worth a pound of cure. He presents specific recommendations to use in drawing up a disaster or loss-control plan. Loss control is defined as a program of measures taken to reduce the possibility of accident, injury, fire, or other loss-producing event.

Chapters discuss fire, water damage, problem patrons, theft and mutilation of materials, building security, and preservation. Each chapter is self contained. Case histories of library disasters are presented, followed by recommendations for protecting the library from such disasters. Lots of useful, common sense, preventative suggestions are given. For example, prepare a library emergency procedures manual; prevent water damage by checking for low shelves and books stored on or close to the floor; minimize possible injuries by marking awkward steps with hazard striping. In addition, the handbook contains informative data on more expensive and sophisticated systems, such as fire suppression and book theft detection systems.

The handbook is appropriate for librarians in all types of libraries. It will be useful for librarians who are aware of a potential problem and are beginning to plan for it. Also, it will raise the level of awareness among librarians about insurance policies, safe building design, and involvement in litigation actions. While most of the material is available in other sources, this publication brings together good information in one source. Use it as a handbook. It is an invaluable, concise reference source on protecting our libraries.

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Management Strategies for Libraries: A Basic Reader, edited by Beverly P. Lynch. New York: Neal-Schuman Publishers, 1985. 682 pp. ISBN 0-918212-86-3. $35.00.

Lynch's book brings together an impressive group of more than 40 contributors from a variety of fields, including sociology, political science, public administration, psychology, and library science. The result is an excellent compilation of the management literature, 38 articles in all, including many classics such as Max Weber and Frederick Taylor. Not only are the selections judicious, but they are also well linked into a cohesive whole. Lynch, a recognized expert in the field of library management, writes clearly and precisely.

The book is divided into three parts, each with an introduction written by Lynch. The three parts are: 1) Theoretical Perspectives, 2) Management Process, and 3) Work of Management. Lynch has skillfully selected and organized the major writings from previously published works and has presented them in a convenient, single volume for the busy manager.

Part I presents the basic theories: structural, human relations, and political approaches. The classics of management theory are presented, followed by articles that demonstrate their influence on librarianship. For instance, Frederick Taylor's "Scientific Management" is followed by "Scientific Management of Library Operations," by Richard M. Dougherty and Fred H. Heinritz. A deliberate effort is made to place management theories in the library context.

Part II deals with the management process in general and its applications to librarianship. Paul Howard's model of management process is included for the sake of historical perspective. Written in 1940, it illustrates the view of American librarians that prevailed in the 1950s. Harold Koontz describes the 11 schools of management theory that comprise the "management theory jungle." Thomas J. Galvin reminds us of the all-important fact that "management *is* problem solving." This section is filled with excellent selections, including Henry Mintzberg's "The Manager's Job: Folklore and Fact," and Robert L. Katz's "Skills of an Effective Administrator," required readings for any manager.

Part III deals with specific management functions, such as decision making, job design, job enrichment, job enlargement, and job satisfaction.

Lynch's book would indeed make an excellent textbook for an introductory course in library management. It presents a general overview of the management literature and

how that literature has influenced the field of librarianship. Lynch advocates no single school of thought, but rather offers different perspectives from which to choose and/or synthesize. I would highly recommend this volume to any practicing or aspiring library manager.

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Technologies of Freedom: On Free Speech in an Electronic Age, by Ithiel de Sola Pool. Cambridge: Belknap Press of Harvard University Press, 1983. 299 pp. ISBN 0-674-87233-9. $8.95 pbk.

Ithiel de Sola Pool's final book before his recent death was awarded the Kammerer Award by the American Political Science Association for its brilliant analysis of trends in the technology, regulation, and freedom of communication in the United States. Pool's basic thesis describes three historical models for the treatment of communication media. The first and oldest is the "Print Model," which guarantees that ideas expressed in newspapers and journals are uninhibited by the government. Under the second model, the "Common Carrier," the government ensures equal access for all citizens—as embodied in our postal system.

These first two models were prescribed by the Constitution but the third was not. During the 1920s, "communications policy in the U.S. most seriously lost its way. Without adequate thought, a structure was introduced for radio which had neither the libertarian features of the common carrier system nor those of the free market." Thus, the "Broadcasting Model" joined the others to form a "neatly trifurcated system" based upon the mode of transmission—a system that is increasingly inadequate as all the media become electronic. The development and convergence of media caused by the computer has also shaken the main underpinning of the Broadcasting Model: the assumption of spectrum limitation. But new modes of delivery, such as coaxial cable, optical fiber, satellite transmission, and magnetic and optical disks, have made that notion obsolete. There are enough transmission channels for everyone.

In a very readable fashion, Pool introduces us to the history of judicial thinking on the important matters of access and freedom in communication. He paints a disturbing portrait of a society unable to keep up with changes in technology, yet determined to preserve both democracy and profit-making in publishing. Especially important to librarians is his discussion of the development of copyright laws and their increasing inadequacy in the face of electronic publication. As Pool says, it will take a long time to sort out the issues and modify our laws, but the new media offer much promise for promoting both human expression and democratic process. A must-read for anyone interested in intellectual freedom.

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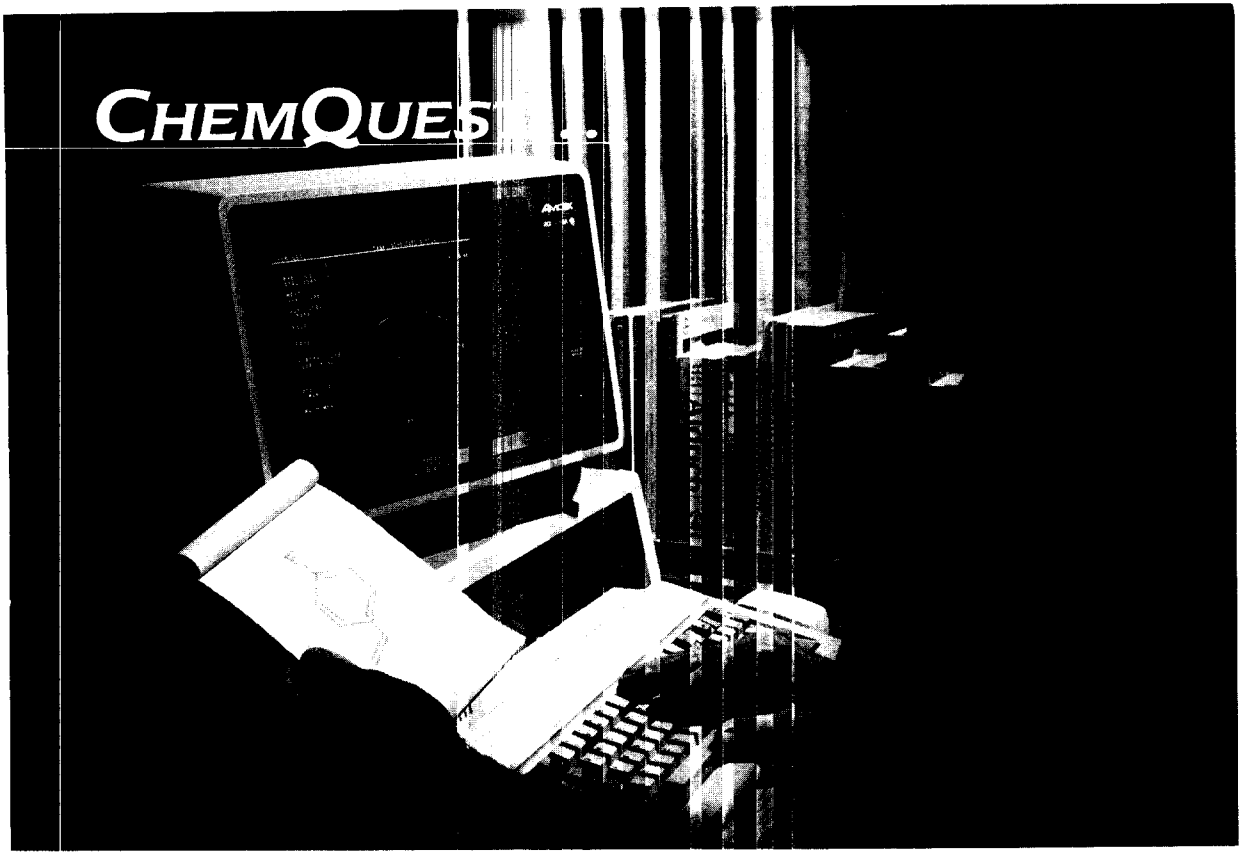

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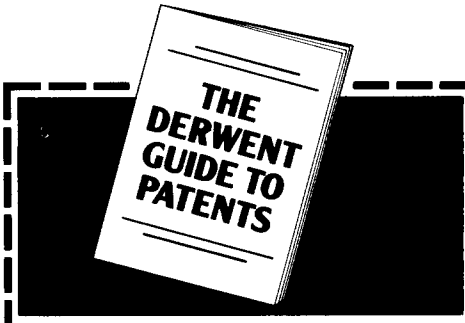

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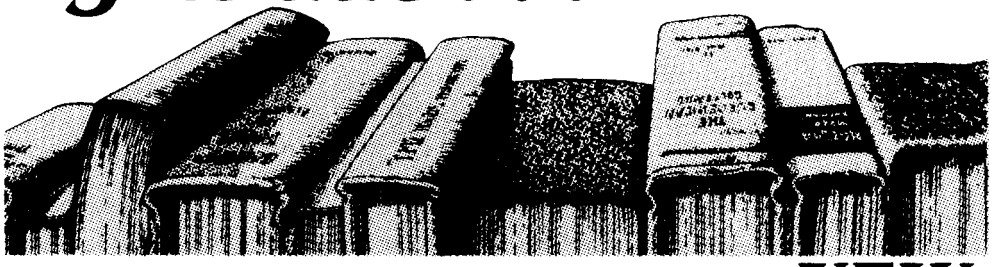

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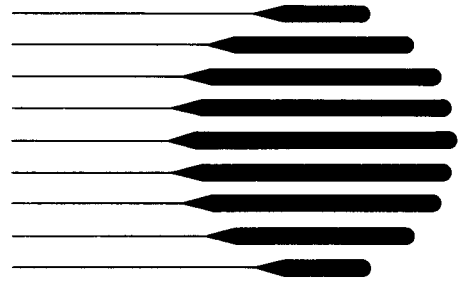

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Featherly, W. "Steps in Preparing a Metrification Program in a Company." ASME Paper 72-DE-12 presented at the Design Engineering Conference and Show, Chicago, Ill., May 8–11, 1972.

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Brown, Abel. *Information at Work.* New York, Abracadabra Press, 1909. 248p.
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Samples of references to other types of publications follow.

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